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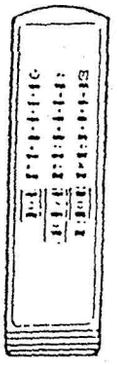
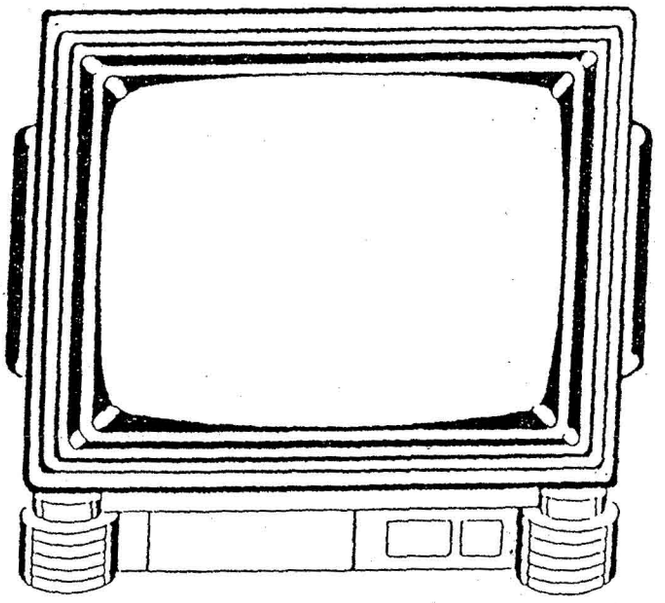
Service Manual





2017

SAFETY INSTRUCTIONS

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "**X-RAY RADIATION PRECAUTION**", "**SAFETY PRECAUTION**" AND "**PRODUCT SAFETY NOTICE**" DESCRIBED BELOW.

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is 25kv at zero beam current (minimum brightness) under 230V AC power source. The high voltage must not, under any circumstances, exceed 30kv. Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK proceduce in this manual. It is recommended the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage matter.
2. The primary source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
3. Some parts in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the **PRODUCT SAFETY NOTICE** below.

SAFETY PRECAUTION

1. Potentials as high as 25K volts are present when this receiver is operating. Operation of the receiver outside the cabinet or with cabinet back removed involves a shock hazard from the receiver.
   a) Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high-voltage equipment.
   b) Alway discharge the picture tube anode to the receiver chassis to keep off the shock hazard before removing the anode cap.
   c) Perfectly discharge the high potential of the picture tube before handling the tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled.
2. If any Fuse is this TV receiver is blown, replace it with the **FUSE** specified in the chassis parts list.
3. The receiver is designed to operate with 230V 50Hz AC mains.
4. When replacing a high wattage resistor (oxide metal film resistor) in circuit board, keep the resistor 10mm away from circuit board.
5. Keep wires away from high voltage or high temperature components.

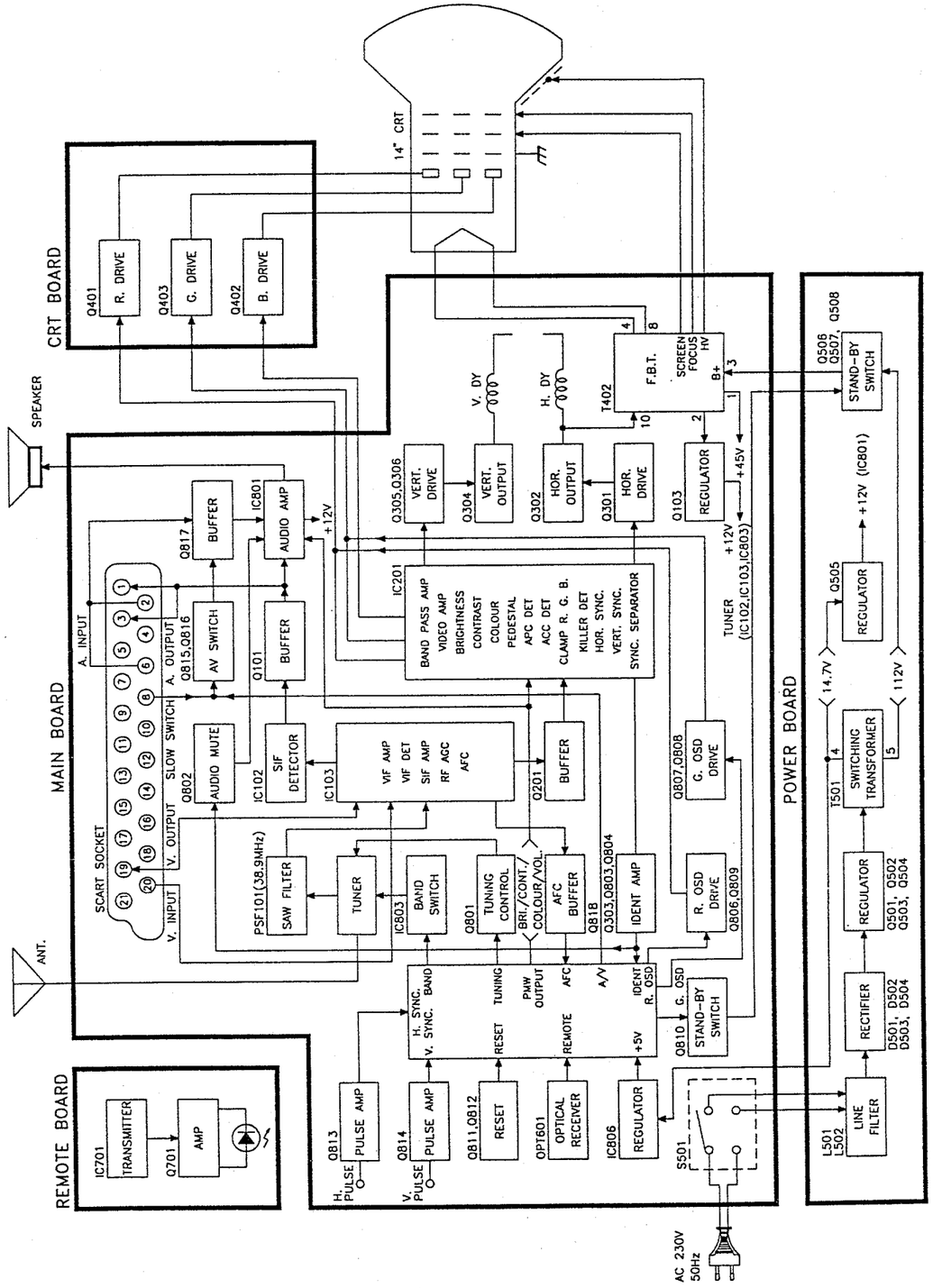
PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safely-related characteristics. These characteristics are often passed unnoticed by a visual inspection and X-RAY RADIATION protection afforded by them cannot necessarily be obtained by using replacement compontents rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements, electrical components having such features are identified by Safety Critical Device which marking on the schematic diagram and the parts list.
Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create X-RAY RADIATION.

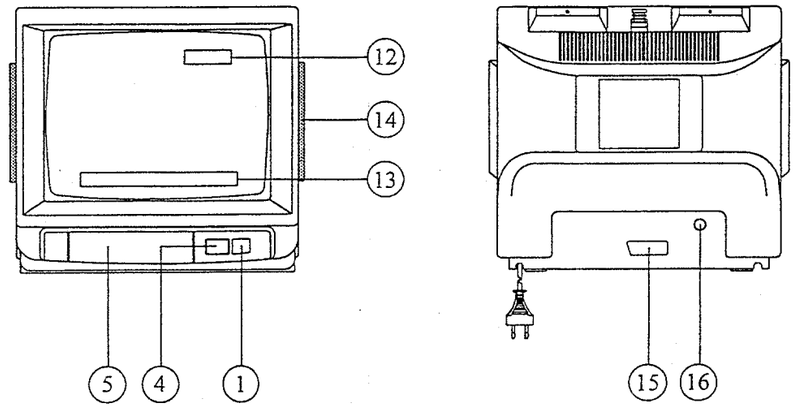
SPECIFICATION

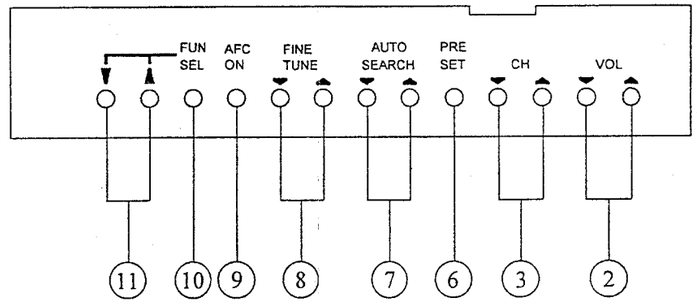
SYSTEM		:	PAL B/G	
CHANNEL COVERAGE	VHF LOW	:	E2 - E4	CH
			X - S1	CH
	VHF HIGH	:	S2 - S20	CH
			E5 - E12	CH
	UHF	:	21 - 69	CH
FREQUENCY RANGE	VHF LOW	:	48.25 - 105.25	MHz
	VHF HIGH	:	112.25 - 294.25	MHz
	UHF	:	471.25 - 855.25	MHz
SCANNING	LINES	:	625	LINES
	HORIZONTAL	:	15625	Hz
	VERTICAL	:	50	Hz
IF FREQUENCY	VIDEO	:	38.9	MHz
	SOUND	:	33.4	MHz
	CHROMA	:	34.47	MHz
VISION/SOUND SEPARATION		:	5.5	MHz
OUTPUT POWER	MAXIMUM	:	> 1500	mW
C.R.T.		:	14" (37cm) Diagonal	
SPEAKER		:	7.6cm x 7.6cm	8 ohm
ANTENNA IMPEDANCE		:	75	ohm
POWER CONSUMPTION		:	55	Watts
VIDEO INPUT/OUTPUT		:	1V p-p (POSITIVE VIDEO) 75 ohm IMPEDANCE	
AUDIO INPUT/OUTPUT		:	0.5V r.m.s. 10K ohm IMPEDANCE	

BLOCK DIAGRAM



OPERATING CONTROL





1. Main Power Switch
2. Volume Control Up/Down
3. Programme Up/Down
4. Infrared Sensor
5. Tuning Compartment Door
6. Preset
7. Auto Search Up/Down
8. Fine Tune Up/Down AFC OFF
9. AFC ON
10. Function Select (Colour/Contrast/Brightness)
11. Function Up/Down
12. Programme Position Indication (0 to 43/Video)
13. Function Indication (Up/Down - 32 Step)
    (Colour/Contrast/Brightness)
    (Volume/Preset/Fine)
14. Speaker
15. Scart Socket
16. 75 Ω Aerial Socket

ALIGMENT INSTRUCTION

PLEASE READ BEFORE ATTEMPTING SERVICE

1. Never disconnect any leads while receiver is in operation.
2. Disconnect all power before attempting any repairs.
3. Do not short any portion of the circuit while power is on.
4. For safety reasons, all parts replaced should be identical, (for parts and part numbers see parts list).
5. Before alignment the set must be pre-heated for 30 minutes or more and erase magnetism thoroughly from CRT front chassis frame by erase coil.

TEST EQUIPMENT

1. VIF Sweep Generator
2. SIF Sweep Generator
3. Colour Bar/Dot/Cross Hatch Generator
4. DC Power Supply (17V)
5. Oscilloscope
6. Vacuum Tube Voltmeter
7. Voltage Meter
8. High Voltage Meter
9. Ampere Meter (0.5 Class, DC 3mA Max.)
10. Demagentizing Coil
11. Philips Pattern Generator
12. Frequency Counter
13. Continuous Waveform Generator
14. 21 Pin Connector

A. VIF TANK COIL ALIGNMENT

1. Connect output lead of VIF SWEEP GENERATOR between test point TP and tuner case.
2. Connect lead of FROM DET between L111 and GND.
3. Supply DC+16.5V to (+) lead of C303.
4. Supply DC+7.5V RF AGC bias voltage to PIN 4 of IC103. (see Fig. 1)

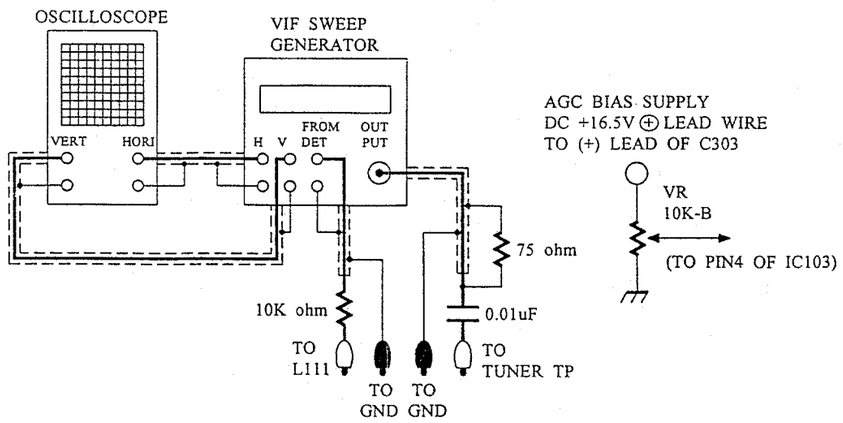
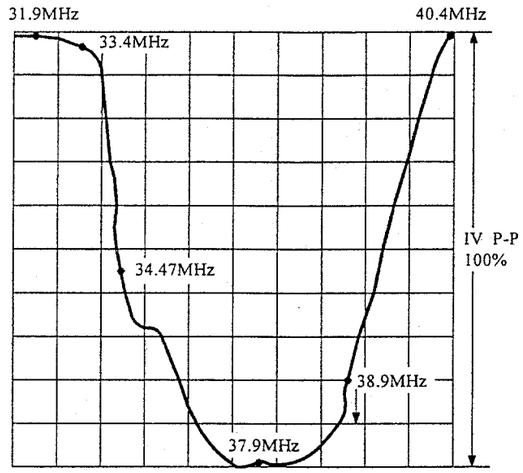


Fig. 1

5. Set VIF SWEEP GENERATOR output level in about 80dB ±3dB.
6. Increase the output level of VIF SWEEP GENERATOR step by step to achieve 1V p-p output on oscilloscope.
7. Adjust L112 to obtain maximum amplitude of response at 38.9MHz as in (Fig. 2).



MARKER FREQUENCY	
1	31.9MHz
2	33.4MHz
3	34.47MHz
4	37.9MHz
5	38.9MHz
6	40.4MHz

Fig. 2

B. MATCHING COIL ALIGNMENT

1. Connect output lead of VIF SWEEP GENERATOR between test point TP and tuner case. Set output level in about 80dB ±3dB.
2. Connect lead of FROM DET between L111 and GND.
3. Connect resistor (100 ohm) between PIN 18 and PIN 19 of IC103.
4. Supply DC +16.5V to (+) lead of C303.
5. Supply DC +7.5V RF AGC bias voltage to PIN 4 of IC103.
6. Adjust L106 to obtain the waveform as in (Fig. 3).

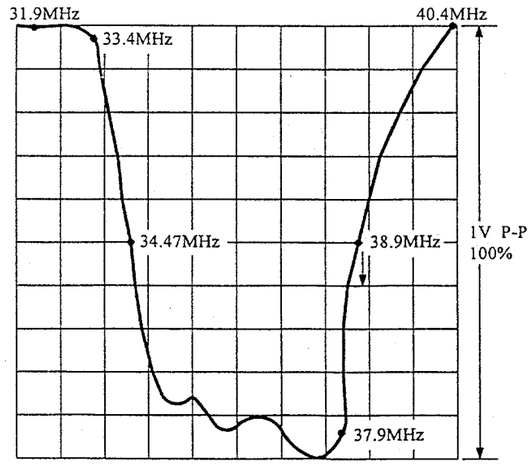


Fig. 3

C. AFC ALIGNMENT

1. Remove the damping resistor (100 ohm) at PIN 18 and PIN 19 of IC103.
2. Connect output lead of SWEEP GENERATOR to tuner point TP and tuner case.
3. Connect lead of DET between PIN 15 of IC103.
4. Supply DC +16.5V to (+) lead of C303.
5. Supply DC +7.5V RF AGC bias voltage to PIN 4 of IC103.
6. Adjust L113 so that picture carrier 38.9MHz is centered as in (Fig. 4).

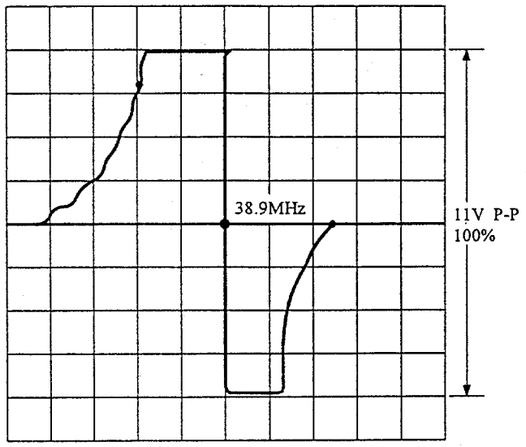


Fig. 4

D. SIF ALIGNMENT

1. Connect output lead of SIF SWEEP GENERATOR between PIN 1 of IC102 and GND (input level 110dB).
2. Connect lead of FROM DET between PIN 8 of IC102 and GND.
3. Supply DC +16.5V to (+) lead of C303.
4. IC303 PIN 4 to GND. (see Fig. 5)
5. Adjust L104 that sound carrier is centered as in (Fig. 6).
6. Adjust output of SWEEP GENERATOR to achieve 5.5V p-p between markers of ±100KHz.

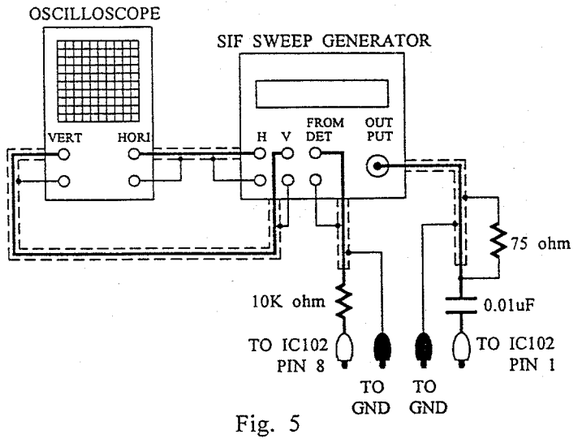


Fig. 5

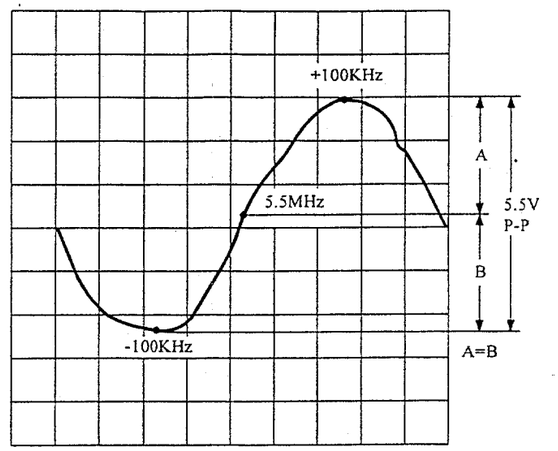


Fig. 6

E. SOUND TRAP ALIGNMENT

1. Connect output lead of SIF SWEEP GENERATOR between PIN 1 of IC103 and GND.
2. Connect lead of FROM DET between IC103 PIN 24 with detector as in (Fig. 7).
3. Disconnect all power from board.
4. Set SIF SWEEP GENERATOR output in about 110dB. (±100KHz deviation)
5. Adjust L109 to obtain response cause as in (Fig. 8).

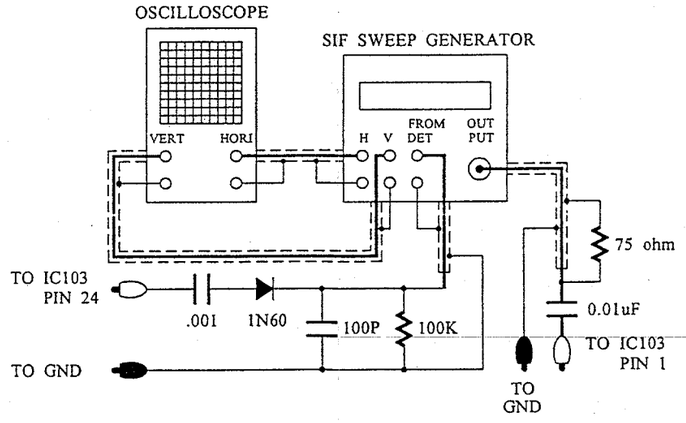


Fig. 7

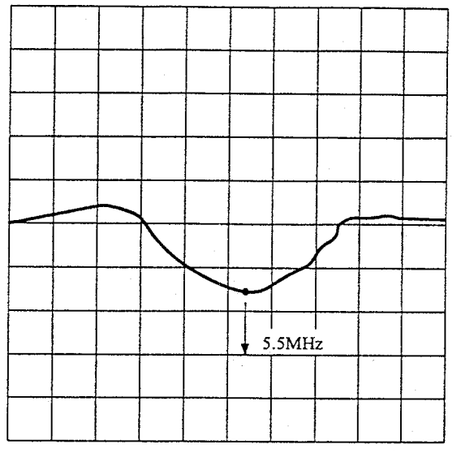


Fig. 8

F. B+ ADJUSTMENT

1. Connect the digital voltmeter to (+) lead of C518.
2. Adjust semi-fixed resistor VR501 until meter reading DC105V ± 0.5V.
   *Remark: Used CHUNGHWA CRT 370KSB22-TC67 (SYB) adjust DC112V ±0.5V.

G. VERTICAL CIRCUIT ADJUSTMENT

1. Receive the monoscope pattern.
2. Adjust V-SIZE (VR202) to obtain a normal picture.

H. FOCUS ADJUSTMENT

1. Set CONTRAST control to middle position and BRIGHTNESS control to middle position.
2. Adjust FOCUS control (on the FBT) to obtain a sharpest picture on CRT.

I. RF AGC ADJUSTMENT

1. Receive the signal of UHF channel.
2. Set the input field strength in 62 ± 3dB.
3. Adjust RE AGC control (VR101) to the point where noise is disappeared.

J. COLOUR DEMODULATOR ADUJSTMENT

1. Receive PHILIPS pattern.
2. Set COLOUR control to maximum position.
3. Set CONTRAST control to middle position.
4. Set BRIGHTNESS control to middle position.
5. Connect oscilloscope to PIN 4 of E socket.
6. Adjust L204 to obtain the waveform as in Fig. 9.
7. Adjust VR201 to obtain the waveform as in Fig. 9.

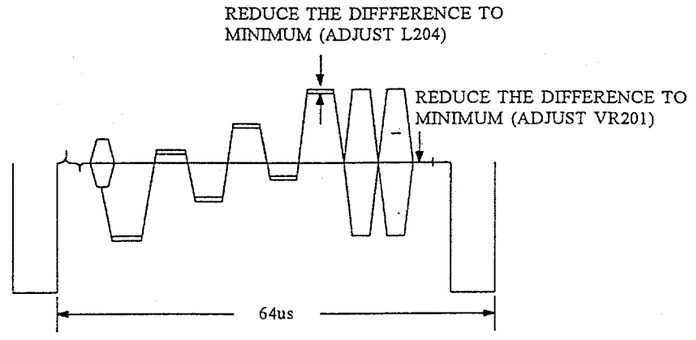


Fig. 9

K. ON SCREEN ADJUSTMENT

1. Receive the monoscope pattern.
2. Adjust on screen VR801 for adjust the lettering to center of CRT.

L. COLOUR PURITY ADJUSTMENT

BEFORE ANY ADJUSTMENTS DESCRIBED BELOW ARE ATTEMPTED, V-HOLD, H-HOLD, V-HIGH, B+ VOLTAGE AND FOCUSING ADJUSTMENT MUST BE COMPLETED.

1. Place the TV receiver facing NORTH or SOUTH.
2. Plug in TV receiver and turn it on.
3. Operate the TV receiver over 30 minutes.
4. Fully degauss the TV receiver by using an external degaussing coil.
5. Receive a crosshatch pattern and adjust the static convergence control roughly.
6. Lossen the clamp screw of the deflection yoke and pull the deflection yoke towards you.
7. Fully turn the red and blue LOW LIGHT (VR402, VR405, VR404) controls counter clockwise.
8. Adjust the purity magnets so that green field is obtained at the center of the screen.
9. Slowly push the deflection yoke towards bell of CRT and set it where a uniform green field is obtained.
10. Tighteen the clamp screw of the deflection yoke as in Fig 10.

M. CONVERGENCE ADJUSTMENT

1. Receive a dotted pattern.
2. Unfix the convergence magnet clamper and align red with blue dots at the center of the screen by rotating (R,B) static convergence magnets.
3. Align red/blue with green dots at the center of the screen by rotating (RB-G) static convergence magnet.
4. Fix the convergence magnets by turning the clamper.
5. Remove the DY wedges and slightly tilt the deflection yoke horizontally and vertically to obtain the good overall convergence.
6. Fix the deflection yoke by wedges as in Fig. 10.
7. If purity error is found, follow "PURITY ADJUSTMENT" instructions.

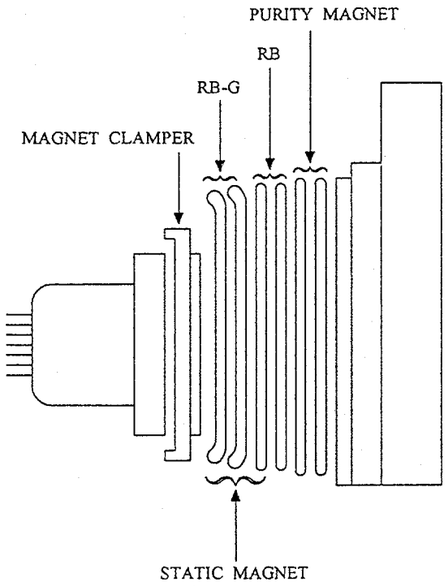


Fig. 10

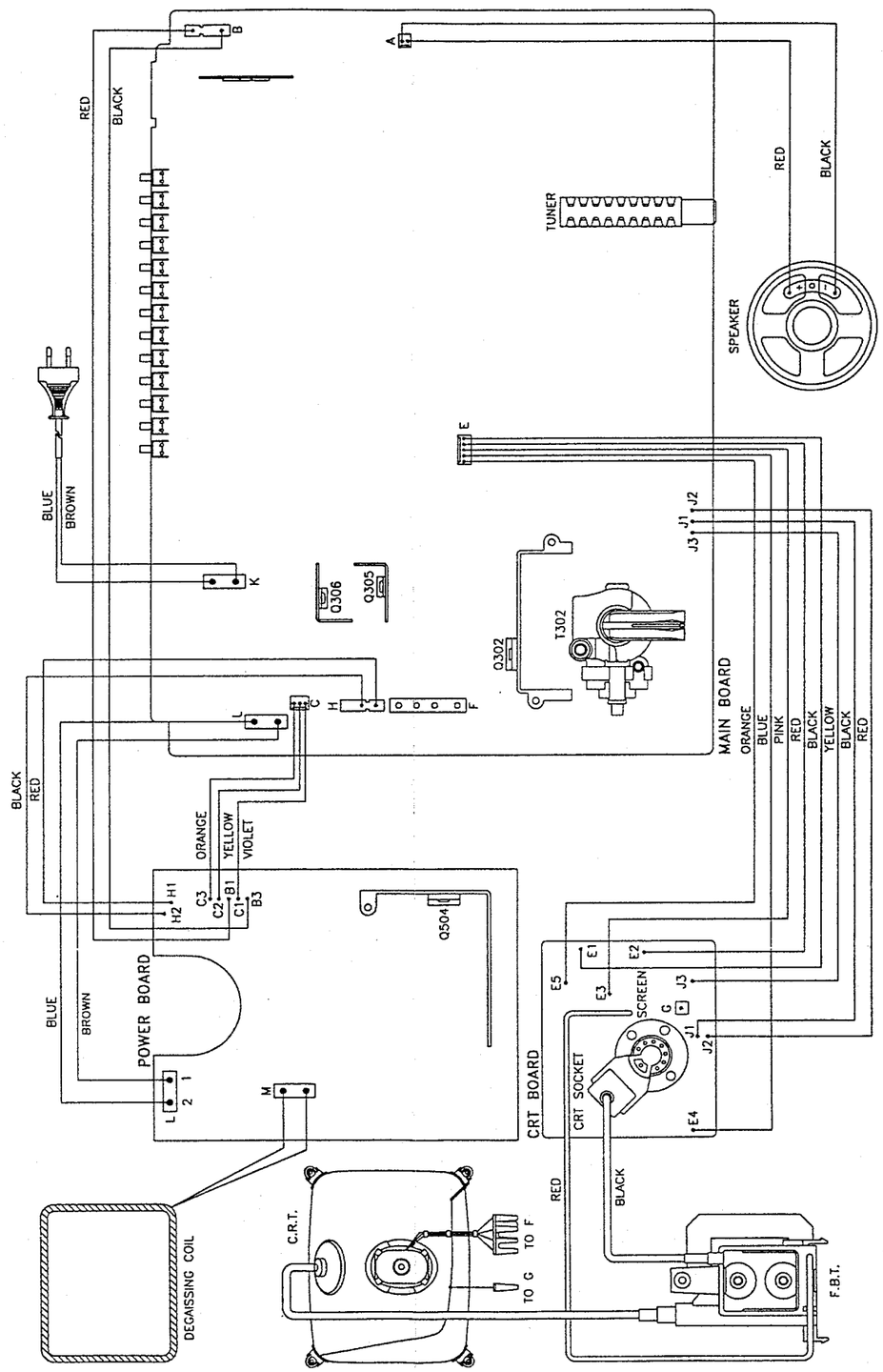
N. WHITE BALANCE ADJUSTMENT

1. Receive the monoscope pattern.
2. Set CONTRAST and BRIGHTNESS control to middle position.
3. Set COLOUR to minimum position.
4. Set TV to AV mode.
5. Set the screen control (on the FBT) to minimum position.
6. Turn the red, green and blue LOW LIGHT (VR402, VR405,VR404) controls to middle positon and turn the DRIVE (VR401, VR403) controls to middle position.
7. Turn SUB-BRIGHTNESS (VR203) to middle position.
8. Set the SERVICE switch (S201) to "SERVICE" position.
9. Slowly turn the screen control clockwise to the point where a horizontal line just illuminates.
10. Adjust VR402 to get a red horizontal line on CRT.
11. Adjust VR405 to get a yellow horizontal line on CRT.
12. Adjust VR404 to get a white horizontal line on CRT.
13. Reset the SERVICE switch (S201) to normal position.
14. Adjust DRIVE (VR401, VR403) controls to obtain a uniform white picture.

O. SUB-BRIGHTNESS ADJUSTMENT

1. Receive COLOUR BAR pattern.
2. Set controls as follows
   BRIGHTNESS controls ———— MIN position
   CONTRAST controls ———— MAX position
   COLOUR controls ———— MIN position
3. Adjust SUB-BRIGHTNESS (VR203) control to get the 5 step of the grey scale just illuminates.

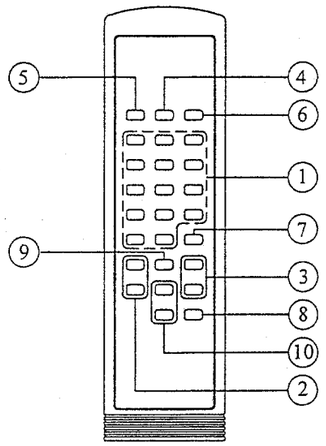
WIRING DIAGRAM



REMOTE CONTROL UNIT

CONTROL LOCATION

1. Channel Selection
2. Porgramme Up/Down
3. Volume Control Up/Down
4. TV/Video Select
5. Power On/Off
6. Off Time Setting
7. Sound Muting
8. Recall
9. Function Select
10. Function Select Up/Down



ELECTRICAL PARTS LIST

PART NO.	DESCRIPTION	SYMBOL NO.	QTY
100-190000-99	HORI DRIVER TRANSFORMER	T301	1
100-420001-98	SWITCHING POWER TRANSFORMER	T501	1
100-737820-01	LINE FILTER	L501,502	2
101-300004-07	CERAMIC FILTER SFE 5.5MB	CF101	1
101-300017-07	CERAMIC FILTER TPS 5.5MB 5.5MHZ	CF102	1
101-300021-07	CERAMIC RESONATOR KBR455BKTL	CF701	1
101-300022-06	CERAMIC RESONATOR (MURATA) CSB 503 F2	CF207	1
101-314000-08	CERAMIC RESONATOR 4MHZ	X801	1
101-451027-09	PIF SAW FILTER F1037B (38.9MHz)	PSF101	1
101-710001-08	PIF & AFC IFT (10MM)KT-802946	L112,113	2
101-710002-08	CHROMA TRAP IFT SIF DET COIL	L104,109	2
101-710003-08	DELAY LINE COIL 802948	L204	1
101-710004-08	PIF MATCHING IFT (10MM) KT-802949	L106	1
101-713789-01	LINEARITY COIL ELH-5L60 65UH	L301	1
103-300314-35	DEGAUSSING COIL		
104-150101-02	PEAKING COIL 15UH CEC-150K	L108,111,205,802	4
104-181101-02	INDUCTOR 180UH CEC-181K	L401	1
104-201101-11	CHOKE COIL 200UH	L505	1
104-220101-02	INDUCTOR 22UH CEC 220K	L210	1
104-229101-02	INDUCTOR 2.2UH CEC 2R2K	L171	1
104-303101-01	CHOKE COIL 30MH+/-10%	L801	1
104-330101-02	INDUCTOR 33UH CEC-330K	L107,207	2
104-509101-02	CHOKE COIL 5UH CR-5R0K-414-01	L504	1
104-569101-02	INDUCTOR 5.6UH CEC-5R6K	L110	1
104-680101-02	PEAKING COIL 68UH CEC 680K	L114,209	2
108-211416-13	FLYBACK TRANSFORMER DNF-FC 1416	T302	1
112-102234-07	SEMI-FIXED RES 1K OHM B EVN8AA03B13	VR201,501	2
112-103234-07	SEMI-FIXED RES 10K OHM B	VR203	1
112-103235-07	SEMI-FIXED RES 10K OHM B EVND2AA03B14	VR402,404,405	3
112-201235-07	SEMI-FIXED RES 200 OHM B EVND2AA03B22	VR401,403	2
112-204234-07	SEMI-FIXED RES 200K OHM B EVN8AA03B25	VR101	1
112-502234-07	SEMI-FIXED RES 5K OHM B EVN8AA03B53	VR801	1
112-503234-07	SEMI-FIXED RES 50K OHM B EVN8AA03B54	VR202	1
113-100205-72	M/O RES 1/2W +/-5% 10 OHM	R310	1
113-100305-72	M/O RES 1W +/-5% 10 OHM	R311	1
113-101105-12	C/F RES 1/4W +/-5% 100 OHM	R238,414,415,416, R601,806,807,808, R809,810,811,855, R862	13
113-102105-12	C/F RES 1/4W +/-5% 1K OHM	R109,126,135,152, R237,268,301,701, R805,852,859,861, R866,872,873,901, R902	17

PART NO.	DESCRIPTION	SYMBOL NO.	QTY
113-103105-12	C/F RES 1/4W +/-5% 10K OHM	R125,131,148,314, R510,602,802,804, R824,827,829,830, R831,833,839,842, R848,851,854,871, R874,879,880,881, R886,889,890	27
113-104105-12	C/F RES 1/4W +/-5% 100K OHM	R111,112,132,207, R888	5
113-105105-12	C/F RES 1/4W +/-5% 1M OHM	R856,864	2
113-106205-22	C/F RES 1/2W +/-10% 10M OHM	R522	1
113-120405-75	M/O RES 2W +/-5% 12 OHM	R513,521	2
113-121105-12	C/F RES 1/4W +/-5% 120 OHM	R240,241	2
113-122205-72	M/O RES 1/2W +/-5%1.2K OHM	R315,316	2
113-123105-12	C/F RES 1/4W +/-5% 12K OHM	R108,122,836,837, R838	5
113-124105-12	C/F RES 1/4W +/-5% 120K OHM	R133	1
113-152105-12	C/F RES 1/4W +/-5% 1.5K OHM	R202,258,259,885	4
113-153105-12	C/F RES 1/4W +/-5% 15K OHM	R245,835	2
113-153405-75	M/O RES 2W +/-5% 15K OHM	R401,405,409	3
113-154105-12	C/F RES 1/4W +/-5% 150K OHM	R205	1
113-182105-12	C/F RES 1/4W +/-5% 1.8K OHM	R210,250,508	3
113-183105-12	C/F RES 1/4W +/-5% 18K OHM	R320	1
113-184105-12	C/F RES 1/4W +/-5% 180K OHM	R114,857,863,878	4
113-184205-22	C/C RES 1/2W +/-10% 180K OHM	R518,519,312	3
113-221105-12	C/F RES 1/4W +/-5% 220 OHM	R882,137	2
113-222105-12	C/F RES 1/4W +/-5% 2.2K OHM	R102,121,127,404, R408,412,826,868, R870,883	10
113-223105-12	C/F RES 1/4W +/-5% 22K OHM	R816,817,818,819, R823,840,841,847, R326,812,813,814, R815	13
113-223305-72	M/O RES 1W +/-5% 22K OHM	R523	1
113-225105-12	C/F RES 1/4W +/-5% 2.2M OHM	R860	1
113-229405-75	M/O RES 2W +/-5% 2.2 OHM	R514,417	2
113-242205-72	M/O RES 1/2W +/-2% 2.4K OHM	R304	1
113-270405-75	M/O RES 2W +/-5% 27 OHM	R515	1
113-271105-12	C/F RES 1/4W +/-5% 270 OHM	R255	1
113-272105-12	C/F RES 1/4W +/-5% 2.7K OHM	R507	1
113-272205-12	C/F RES 1/2W +/-5% 2.7K OHM	R308,402,406,410	4
113-273105-12	C/F RES 1/4W +/-5% 27K OHM	R267	1
113-330105-12	C/F RES 1/4W +/-5% 33 OHM	R858,865,884	3
113-330405-75	M/O RES 2W +/-5% 33OHM	R303	1
113-331105-12	C/F RES 1/4W +/-5% 330 OHM	R123,505	2
113-332105-12	C/F RES 1/4W +/-5% 3.3K OHM	R130,235,262,526, R845	5
113-333105-12	C/F RES 1/4W +/-5% 33K OHM	R226,265,321,832, R834,843,844,887	8
113-334105-12	C/F RES 1/4W +/-5% 330K OHM	R251	1
113-338405-75	M/O RES 2W +/-5% 0.33 OHM	R516	1
113-390605-31	W/W RES 5W +/-10% 39 OHM	R517	1
113-391105-12	C/F RES 1/4W +/-5% 390 OHM	R263	1
113-393105-12	C/F RES 1/4W +/-5% 39K OHM	R206,208,877,103	4

PART NO.	DESCRIPTION	SYMBOL NO.	QTY
113-399605-42	N/I RES 5W +/-10% 3.9 OHM	R503	1
113-439305-72	C/F RES 1W +/-5% 4.3 OHM	R309,323	2
113-471105-12	C/F RES 1/4W +/-5% 470 OHM	R138,201,229,230, R231	5
113-472105-12	C/F RES 1/4W +/-5% 4.7K OHM	R512,867,869,828, R876,892	6
113-472505-52	M/O RES 3W +/-5% 4.7K OHM	R305	1
113-473105-12	C/F RES 1/4W +/-5% 47K OHM	R136	1
113-479105-12	C/F RES 1/4W +/-5% 4.7 OHM	R801	1
113-511105-12	C/F RES 1/4W +/-5% 510 OHM	R234	1
113-561105-12	C/F RES 1/4W +/-5% 560 OHM	R209,249,264,306 R307,325,403,407	8
113-562105-12	C/F RES 1/4W +/-5% 5.6K OHM	R128,129,140,141 R825,875	6
113-563105-12	C/F RES 1/4W +/-5% 56K OHM	R113,246,319,504	4
113-563205-72	M/O RES 1/2W +/-5% 56K OHM	R501,502	2
113-622105-12	C/F RES 1/4W +/-5% 6.2K OHM	R266	1
113-680105-12	C/F RES 1/4W +/-5% 68 OHM	R134	1
113-681105-12	C/F RES 1/4W +/-5% 680 OHM	R411,803	2
113-682105-12	C/F RES 1/4W +/-5% 6.8K OHM	R120,506,511,525	4
113-682405-75	M/O RES 2W +/-5% 6.8K OHM	R302,324	2
113-683105-12	C/F RES 1/4W +/-5% 68K OHM	R224,247,101	3
113-750105-12	C/F RES 1/4W +/-5% 75 OHM	R124	1
113-820105-12	C/F RES 1/4W +/-5% 82 OHM	R110	1
113-821205-12	C/F RES 1/2W +/-5% 820 OHM	R322	1
113-822105-12	C/F RES 1/4W +/-5% 8.2K OHM	R225,509,850,853	4
113-829205-72	M/O RES 1/2W +/-5% 8.2 OHM	R139	1
113-912105-12	C/F RES 1/4W +/-5% 9.1K OHM	R236	1
114-210180-03	PTC THERMISTOR +/-30% 18 OHM	R524	1
123-101340-10	CERA CAP 50V +/-5% 100PF SL	C824,825,826,827, C839,841	6
123-101350-10	CERA CAP 50V +/-5% 100PF	C701,702	2
123-102370-30	CERA CAP 50V +80 -20% 0.001UF	C837	1
123-102850-10	CERA CAP 2KV +/-10% 1000PF	C404	1
123-103370-30	CERA CAP 50V +80 -20% 0.01UF	C122,132,136,137, C139,222,227,241, C242,703,823,845	12
123-104370-30	CER CAP 50V +80 -20% 0.1UF F	C147,148,262,820, C848,849	6
123-120340-10	CERA CAP 50V +/-5% SL 12PF	C120,249	2
123-150340-10	CERA CAP 50V +/-5% SL 15PF	C819	1
123-152850-10	CERA CAP 2KV +/-10% 1500PF Y5P	C312	1
123-203370-30	CERA CAP 50V +80 -20% 0.02UF F	C121,143,260,844	4
123-220340-10	CERA CAP 50V +/-5% 22PF SL	C125,250	2
123-221350-10	CERA CAP 50V +/-10% SL220PF	C162	1
123-221550-40	CERA CAP 500V +/-10% 220PF Y5P	C319	1
123-222350-10	CERA CAP 50V +/-10% 0.0022UF	C843	1
123-222561-10	CERA CAP AC 400V +/-20% 2200PF	C512	1
123-222670-10	CERA CAP 1KV +/-20% 0.0022UF Z5U	C516	1
123-222860-10	CERA CAP 2KV +/-20% 2200PF Z5U	C511	1
123-224370-30	CERA CAP 50V +80 -20% 0.22UF F	C833	1
123-300340-10	CERA CAP 50V +/-5% SL 30PF	C816,817	2
123-301340-10	CERA CAP 50V +/-5% SL 300PF	C401,403	2
123-330340-10	CERA CAP 50V +/-5% SL 33PF	C126,257	2

PART NO.	DESCRIPTION	SYMBOL NO.	QTY
123-330350-10	CERA CAP 50V +/-10% SL 330PF	C161	1
123-390340-10	CERA CAP 50V +/-5% SL 39PF	C818	1
123-391340-10	CERA CAP 50V +/-5% SL 390PF	C402	1
123-391550-40	CERA CAP 500V +/-10% 390PF Y-5P	C306	1
123-470350-10	CERA CAP 50V +/-10% 47PF	C258	1
123-471350-10	CERA CAP 50V +/-10% 470PF SL	C140	1
123-471551-10	CERA CAP AC 400V +/-10% 470PF	C522,523	2
123-471850-90	CERA CAP 2KV +/- 10% 470PF	C326	1
123-472551-60	CERA CAP 500V +/-20% 0.0047UF Z5U	C321,504,505,519 C520	5
123-472660-10	CERA CAP 1KV +/-20% 0.0047UF Z5U	C517	1
123-473370-30	CERA CAP 50V +80 -20% 0.047UF F	C803	1
123-560340-10	CERA CAP 50V +/-5% 56PF SL	C828,830	2
123-561350-10	CERA CAP 50V +/-10% SL 560PF	C810,811,812,813, C814,815	6
123-680340-10	CERA CAP 50V +/-5% 68PF SL	C829	1
123-681552-40	CERA CAP 500V +/-10% 680PF Y-5P	C302,308,310,514	4
124-105051-01	TANT CAP 25V +/-10% 1UF	C259	1
124-225061-01	TANT CAP 35V +/-10% 2.2UF	C322	1
125-222600-01	P/F CAP 630V +/-5% 0.0022UF	C305	1
125-223210-01	P/F CAP 250V +/-5% 0.022UF	C307,313	2
125-364211-01	P/F CAP 250V +/-10% 0.36UF	C315	1
125-472000-01	M/P CAP 1600V +/-5% 0.0047UF	C314	1
125-473211-01	P/F CAP 250V +/-10% 0.047UF	C304	1
125-563211-01	P/F CAP 250V +/-10% 0.056UF	C309	1
126-102701-01	MYLA CAP 100V +/-10% 0.001UF	C807	1
126-103071-01	MYLA CAP 100V +/-10% 0.01UF	C255	1
126-104071-01	MYLA CAP 100V +/-10% 0.1UF	C509	1
126-222071-01	MYLA CAP 100V +/-10% 0.0022UF	C229	1
126-223071-11	MYLA CAP 100V +/-10% DUREX 0.022UF	C226,251,145	3
126-333071-01	MYLA CAP 100V +/-10% 0.033UF DUREX	C507,268	2
126-682071-01	MYLA CAP 100V +/-10% 0.0068UF	C123	1
127-105072-01	ELEC CAP 50V +/-20% 1UF	C207,216,237,838, C846,127,129,131	8
127-105135-01	ELEC CAP 160V +/-20% 1UF	C325	1
127-106042-01	ELEC CAP 16V +/-20% 10UF	C102,206,521,801, C805,822,840,842	8
127-106072-01	ELEC CAP 50V +/-20% 10UF	C508,318,834	3
127-106215-01	ELEC CAP 250V +/-20% 10UF	C311	1
127-107032-01	ELEC CAP 10V +/-20% 100UF	C704	1
127-107042-01	ELEC CAP 16V +/-20% 100UF	C124,146,149,150 C809,821,221	7
127-107135-01	ELEC CAP 160V +/-20% 100UF	C316,C518	2
127-107405-01	ELEC CAP 400V +/-20% 100UF	C506	1
127-108052-01	ELEC CAP 25V +/-20% 1000UF	C303	1
127-224072-01	ELEC CAP 50V +/-20% 0.22UF	C214,215,217	3
127-225072-01	ELEC CAP 50V +/-20% 2.2UF	C228,806,836	3
127-225072-11	ELEC CAP 50V +/-20% 2.2UF (BI-POLAR)	C256,808	2
127-226042-01	ELEC CAP 16V +/-20% 22UF	C130,133,141,142 C236,847	6
127-227072-01	ELEC CAP 50V +/-20% 220UF	C320	1
127-335072-01	ELEC CAP 50V +/-20% 3.3UF	C225,835	2
127-474072-01	ELEC CAP 50V +/-20% 0.47UF	C128,138,244,264, C831,832	6

PART NO.	DESCRIPTION	SYMBOL NO.	QTY
127-475135-01	ELEC CAP 160V +/-20% 4.7UF	C317	1
127-476042-01	ELEC CAP 16V +/-20% 47UF	C101	1
127-476052-01	ELEC CAP 25V +/-20% 47UF	C510	1
127-476135-01	ELEC CAP 160V +/-20% 47UF	C301	1
127-477042-01	ELEC CAP 16V +/-20% 470UF	C261,263,801,802	4
127-477052-01	ELEC CAP 25V +/-20% 470UF	C515	1
128-104212-21	MP/F CAP AC 250V +/-20% 0.1UF	C502	1
128-474212-21	MP/F CAP AC 250V +/-20% 0.47UF	C501	1
130-700574-01	IC UPC574J	IC804	1
130-850560-20	IC M50560-001P	IC701	1
130-900240-14	IC AN240P	IC102	1
130-902549-24	IC TDA2549	IC103	1
130-905265-09	IC AN5265	IC801	1
130-907910-00	IC LA7910	IC803	1
130-908718-30	IC TA8718	IC201	1
130-934300-42	IC M34300N4-012SP	IC802	1
131-127805-02	IC L7805CV	IC806	1
131-210940-00	TR 2SA 940(Z) (TOSHIBA)	Q306	1
131-211013-25	TR 2SA 1013-O	Q506	1
131-211015-01	TR 2SA 1015GR (2SB774T)	Q502	1
131-211015-25	TR 2SA 1015-Y	Q810,815	2
131-218020-00	TR BSX20 "SGS"	Q808,809	2
131-231815-25	TR 2SC 1815Y (TOSHIBA)	Q101,201,303,501, Q503,801,802,803, Q804,806,807,811, Q812,813,814,816, Q817,818	18
131-232073-00	TR 2SC 2073(Z) (TOSHIBA)	Q305	1
131-232120-25	TR 2SC 2120-Y	Q701	1
131-232229-15	TR 2SC 2229-O NPN VIDEO O/P (TOSHIBA)	Q304	1
131-232230-25	TR 2SC 2230-Y	Q507	1
131-232482-00	TR 2SC 2482	Q301,401,402,403	4
131-233309-01	TR 2SC 3309-O	Q508	1
131-232703-00	TR 2SC 2703-Y	Q505	1
131-240612-06	TR 2SD 612E	Q103	1
131-241545-00	TR 2SD 1545	Q504	1
131-241554-00	TR 2SD 1554	Q302	1
132-131555-00	DIODE IS1555 (TOSHIBA)	D302,303	2
132-131835-00	DIODE IS1835 TPA2	D511	1
132-134148-00	DIODE IN4148	D103,105,201,207, D513,701,702,703, D704,705,706,707, D801,802,803,804, D805,806,807,808, D809,810,811,812, D813,814,815,816, D817,818,819,820, D821,822,823,824, D825,826,828,829, D830,832,840	43
132-135295-00	DIODE BYT52K	D304,305,307,308, D309,310,507,508, D509,510	10
132-314004-10	DIODE IN 4004	D306,501,502,503	5

PART NO.	DESCRIPTION	SYMBOL NO.	QTY
		D504	
132-410012-01	ZENER DIODE HZ12A-1 12V	D102	1
132-410013-00	ZENER DIODE HZ12B-2 13V	D514	1
132-410020-00	ZENER DIODE HZ2O-2 20V	D205	1
132-410027-00	ZENER DIODE EZX55C2V7	D301	1
132-410039-00	ZENER DIODE HZ4B2 3.9V	D831	1
132-410051-00	ZENER DIODE HZ5C2 5.1V	D827	1
132-410075-00	ZENER DIODE HZ7C-1 7.5V	D208	1
132-410082-00	ZENER DIODE HZ9A-2 8.2V	D505	1
132-410091-00	ZENER DIODE HZ9B-1 9.1V	D204,506	2
132-420012-00	ZENER DIODE HZX85C 12V 1W	D206	1
132-510105-00	INFRARED LED TLN 105B	LD701,702	2
132-510114-00	LED (5MM-RED)	LD801	1
133-004430-10	CRYSTAL 4.43MHZ	X201	1
136-830337-00	HC337-OR HC320	PT601	1
139-200409-01	DELAY LINE YBL-50A18X	DL201	1
139-645011-01	GLASS DELAY LINE YCS-EN645A11	DL202	1
141-062411-06	SLIDE SWITCH 2P2T	S201	1
144-011031-05	CD LOCKER SWITCH F1Q61		1
144-011411-19	TACT SW KPT-1105S 8.35MM	S801,802,803,804, S805A,805B,805C, S806A,806C,806D, S806E,806F	13
145-110001-00	POWER PUSH SWITCH J-E3020#01	S501	1
154-002900-01	TUNER TELEFUNKEN CATV FTZ 2900KKC		1
160-101802-01	ONE PIN SOCKET (STV-8-1H)	CRT G TO CRT PCB G	1
160-101805-01	ONE PIN PLUG (STV-8-1W)	CRT G	1
160-101805-02	ONE PIN PLUG	R503	2
160-102252-24	2 PIN SOCKET P24111-2	A	1
160-102255-24	2 PIN PLUG M24111-2	A	1
160-102802-01	2 PIN SOCKET (STV-8-2H)	L, (L1,L2)	3
160-102805-01	2 PIN PLUG (STV-8-2W)	L,M,K,(L1,L2)	4
160-103252-24	3 PIN SOCKET P24111-3	C	1
160-103255-24	3 PIN PLUG M24111-3	C	1
160-103752-01	3 PIN SOCKET P1138-3	B,H	2
160-103755-01	3 PIN PLUG M-1138-3	B,H	2
160-104805-01	4 PIN PLUG (STV-8-4W)	F	1
160-105252-24	5 PIN SOCKET P24111-5	E	1
160-105255-24	5 PIN PLUG M24111-5	E	1
160-121502-01	SOCKET (21 PINS)		1
161-721008-01	CRT SOCKET S08729		1
161-731008-01	FOCUS COVER FOR CRT SOCKET		1
170-130008-15	SPEAKER 8 OHM 1.5W		1
179-501000-00	STAGHETTI TUBE 1MM DIA.	R501,R502=20MM R513,R521=40MM BARE WARE =10MM	0.007
180-221100-00	AC LINE CORD (VDE)		1
181-006000-00	6000MM BARE WIRE 0.6MM 1KG=357M		0.016
181-124026-001	JUMPER WIRE AWG #24 260MM BLACK	CN A1 TO SP-	1
181-124026-021	JUMPER WIRE AWG #24 260MM RED	CN A2 TO SP+ PCB C1	1

PART NO.	DESCRIPTION	SYMBOL NO.	QTY
181-124026-031	JUMPER WIRE AWG #24 260MM ORANGE	CN C1 TO POWER PCB C3	1
181-124026-041	JUMPER WIRE AWG #24 260MM YELLOW	CN C2 TO POWER PCB C2	1
181-124026-071	JUMPER WIRE AWG #24 260MM VIOLET	CN C3 TO POWER PCB C1	1
181-124030-00	JUMPER WIRE AWG #24 300MM BLACK	CRT PCB J1 TO MAIN PCB J1	1
181-124030-02	JUMPER WIRE AWG #24 300MM RED	CRT PCB J2 TO MAIN PCB J2	1
181-124030-04	JUMPER WIRE AWG #24 300MM YELLOW	CRT PCB J3 TO MAIN PCB J3	1
181-126040-001	JUMPER WIRE AWG #26 400MM BLACK	CNE 1 TO CRT PCB E1	1
181-126040-021	JUMPER WIRE AWG #26 400MM RED	CNE 2 TO CRT PCB E2	1
181-126040-031	JUMPER WIRE AWG #26 400MM ORANGE	CNE 5 TO CRT PCB E5	1
181-126040-051	JUMPER WIRE AWG #26 400MM PINK	CNE 3 TO CRT PCB E3	1
181-126040-061	JUMPER WIRE AWG #26 400MM BLUE	CNE 4 TO CRT PCB E4	1
181-322005-00	JUMPER WIRE AWG #22 50MM BLACK	C303 (-) TO 21 SCART GND C261 (-) TO TUNER GND	2
181-322022-003	JUMPER WIRE AWG #22 220MM BLACK	CN H2 TO H2	1
181-322022-012	JUMPER WIRE AWG #22 220MM BROWN	CN L1 TO POWER PCB L1	1
181-322022-023	JUMPER WIRE AWG #22 220MM RED	CN H1 TO H1	1
181-322022-062	JUMPER WIRE AWG #22 220MM BLUE	CN L2 TO POWER PCB L2	1
181-322030-032	JUMPER WIRE AWG #22 300MM BLACK	CRT PCB G TO CRT GND	1
181-322046-003	JUMPER WIRE AWG #22 460MM BLACK	CN B3 TO B3	3
181-322046-023	JUMPER WIRE AWG #22 460MM RED	CN B1 TO B1	1
181-828000-00	BRAIDED WIRE 500MM	CRT GND WIRE	0.0068
190-374501-02	MAIN PCB (261092)		1
190-374502-01	CRT PCB		1
190-374503-01	POWER PCB (92116)		1
190-374504-01	REMOTE HANDSET PCB		1
192-122000-03	FUSE T2A 5 X 20MM 250V SEV	F501	1
466-101101-01	FUSE HOLDER		2
481-378801-01	HEAT SINK	Q302	1
481-378802-01	POWER SUPPLY HEAT SINK	Q504	1
483-378801-01	SHIELD BOX TOP		1
483-378802-01	SHIELD BOX BOTTOM		1
484-378801-01	HEAT SINK PLATE	IC801	1
484-779101-01	HEAT SINK FOR TRANSISTOR	Q305,306	2
531-378801-01	FIBER PAPER	SHIELD BOX BOTTOM	1
680-101261-01	WIRE TIE	TO AC LINE CORD	11

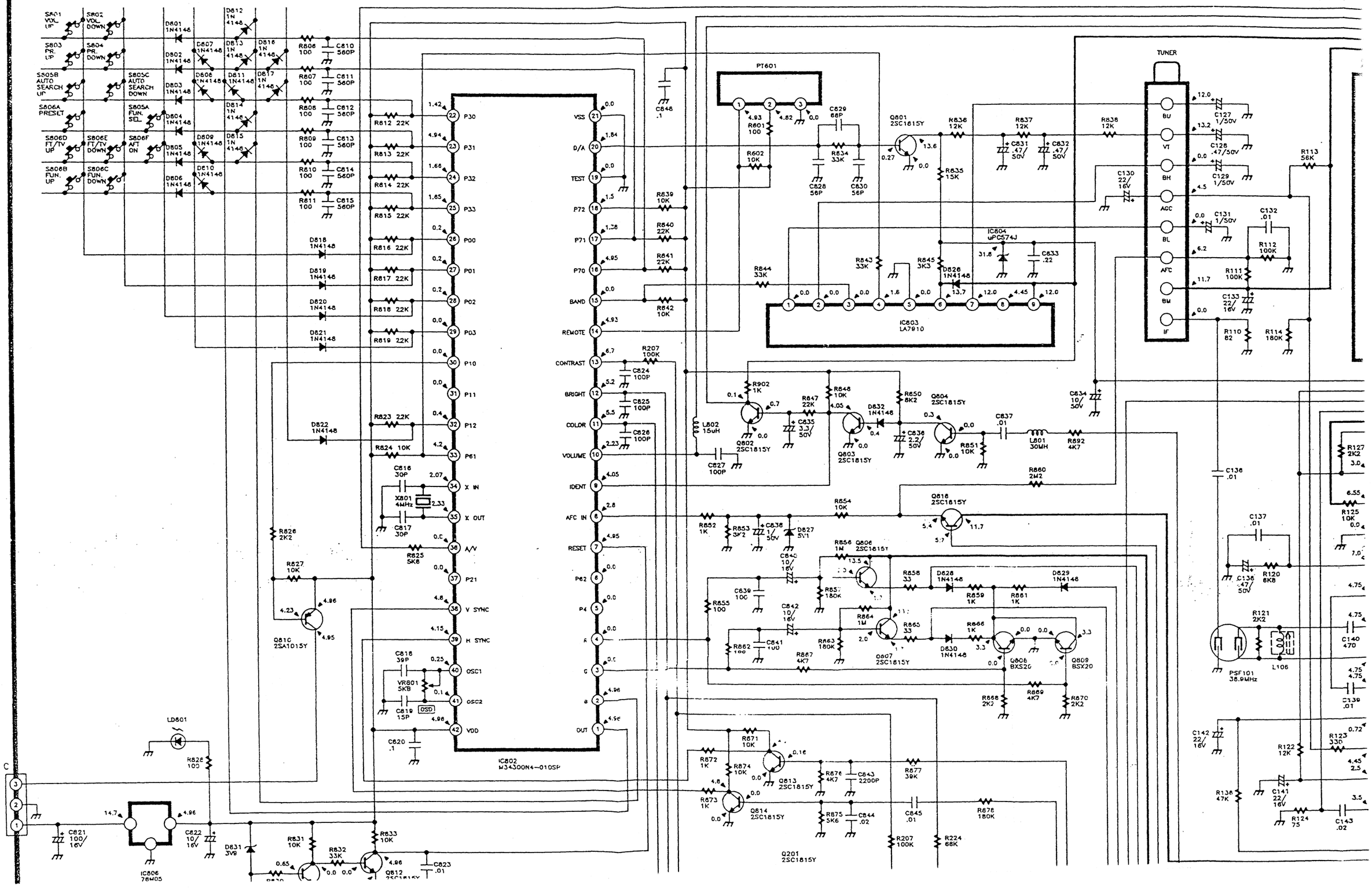
MECHANICAL PARTS LIST

PART NO.	DESCRIPTION	SYMBOL NO.	QTY
138-378801-01	CRT 14"		1
194-311913-00	FERRITE CORE		1
196-415100-01	BATTERY UM4 1.5V		2
200-378801-01	MAIN FRONT CABINET		1
201-151501-00	HANDSET TOP CAB		1
202-151502-00	HANDSET BOTTOM CAB		1
202-378801-01	BACK CABINET		1
210-151501-00	BATTERY DOOR		1
214-378801-01	PRESET DOOR		1
228-378801-01	POWER BOARD BRACKET 'L'		1
228-378802-01	POWER BOARD BRACKET 'R'		1
229-378801-01	PCB BRACKET	PCB TO BACK CAB	1
229-378802-01	CABINET BRACKET	BACK TO FRONT MTG	2
229-378803-01	L.E.D. HOLDER		1
230-378801-01	PANEL W/ SPRAY BLACK		1
250-378801-01	CRT MOUNTING HOLDER		4
254-378801-01	PLASTIC WASHER		1
263-378901-01	REMOTE LENS		1
263-378902-01	PANEL LENS		1
279-378801-01	POWER KNOB		1
286-378800-01	NAME PLATE		1
334-151501-01	CONDUCTIVE RUBBER		1
334-772101-01	RUBBER RING		4
384-151503-15	HANDSET CONTROL OVERLAY 'NIL'		1
385-378801-03	CONTROL PLATE		1
472-151501-01	BATTERY CONTACT (+)		2
473-151501-01	BATTERY CONTACT (-)		1
477-378801-01	POWER KNOB SPRING		1
477-770001-01	CRT SPRING		1
482-507244-02	ROD ANTENNA		1
485-378801-00	SPEAKER GRILL (LEFT) BLACK		2
600-305010-10	P/H 3X0.5X10MM	Q302(1) Q302 HEATSINK TO PCB MTG (2) Q504 MTG (1) Q504 HEAT SINK TO PCB MTG (1)	5
608-305008-10	T/P/H 3X0.5X8	Q305(1), Q306(1), IC801(1)	3
610-200108-10	R/T 2X8MM	HANDSET PCB MTG	1
610-300110-10	R/T 3X10MM	PANEL MTG	3
611-300208-10	T. SCREW 3X8KA	TO POWER KNOB	1
612-300108-10	R/T 3X8MM	PCB BKT TO PCB MTG AC LINE CORD	2
612-300110-10	R/T 3X10MM	CAB BACK TO PCB BKT	1
614-400116-10	B/T 4X16MM	BACK TO FRONT CAB	4

PART NO.	DESCRIPTION	SYMBOL NO.	QTY
614-500130-10	B/T 5X30MM	CRT MTG	4
620-300522-62	M3 NUT		5
630-065045-05	M3 EXTERNAL TOOTH WASHER		5
634-070032-05	M3 METAL WASHER	TO POWER KNOB	1
651-000001-01	AC LINE CORD CLIP	BACK COVER	1
660-040001-01	WIRE CLIP	TO AC LINE CORD	1

SCHEMATIC DIAGRAM FOR PAL B/G

MAIN BOARD



SPEAKER 8 OHM 1.5W

A

B

IC601
AN5265

C801 470/ 16V

R597 10 1W

C802 470/ 16V

R601 4.7

R602 10K

R603 660

C803 .047

C805 10/ 16V

C804 10/ 16V

C806 2.2/ 50V

R604 10K

R901 1K

R890 4K7

C807 .001 (M)

C808 2.2/50V (RD)

C809 100/ 16V

D623 1N4148

D624 1N4148

R886 10K

R113 56K

A OUT R
A OUT L
V OUT
A/V SW
R A IN
L A IN
V IN

R140 5K6

R141 5K6

Q815 2SA1015Y

R882 220

R884 33

R883 2K2

Q816 2SC1815Y

Q817 2SC1815Y

R887 33K

C846 1/50V

Q101 2SC1815Y

C162 220P

R101 68K

D840 1N4148

C102 10/ 16V

R152 1K

R888 100K

R885 1K5

R505 1K

C847 22/ 16V

D825 1N4148

R103 39K

L171 2.2uH

R889 10K

R102 2K2

C101 47/ 16V

C161 330P

R324 6K8 2W

L107 33uH

R127 2K2

L109 5.5MHz TRAP

R128 5K6

R129 5K6

L111 15uH

R126 1K

CF102 5.5MHz

R125 10K

COMPOSITE OUTPUT

COMPOSITE INPUT

MODULATION SWITCH

VIDEO S/W

VIDEO OUT

L110 5.6uH

R137 220

C146 .1

C125 22P

C124 100/ 16V

C123 .0068 (M)

C122 .01

L108 15uH

C126 33P

CF101 5.5MHz

R109 1K

C121 .02

DE-EMPHASSIS

DC VOL CONTROL

VCC

NC

GND

CARRIER

INPUT

DET OUT

NC

A. OUT

TONE CONTROL

FROM "6"

D105 1N4148

L104 SOUND

R146 10K

R108 12K

C120 12P

IC102
AN240P

VCC

AFC

L112 TANK

R130 3K3

L113 AFC

AFC INVERTER

Q103 2SD612

L114 68uH

R131 10K

C145 .022 (M)

C148 100/ 16V

R132 100K

R133 120K

AFC OUT

AUX V. OUT

R134 68

R135 1K

VCC

C139 .01

C140 470

IF INPUT

IF INPUT

R123 330

TUNER AGC

R124 75

C143 .02

AUX V. IN

C146 100/ 16V

C147 .1

D103 1N4148

D102 12V

R138 470

C150 100/ 16V

R139 8.2 1/2W

VR101 200KB

RF-AGC

IC103
TDA2549

Q303 2SC1815Y

E

CRT BOARD

TO J2

TO J3

TO J1

R417 2.2 2W

L401 180uH

R401 15K 2W

R402 2K7 1/2W

R414 100

Q401 2SC2482

R403 560

R404 2K2

C401 300P

VR401 200

R DRIVE

VR402 10KB

R. CUT

R405 15K 2W

R406 2K7 1/2W

R409 15K 2W

R415 100

Q402 2SC2482

R416 100

Q403 2SC2482

R410 2K7 1/2W

R407 560

C402 390P

R408 2K2

VR403 200

B DRIVE

VR404 10KB

B. CUT

R412 2K2

R411 680

C403 300P

VR405 10KB

G. CUT

14" CRT

R

B

G

C404 1000P 2KV

E2 E5 E4 E3 E1

TO SCREEN

TO FOCUS

TO EHT

HANDSET BOARD

3V

D703 1N 4148

D704 1N 4148

D705 1N 4148

D706 1N 4148

D702 1N4148

D701 1N4148

D707 1N4148

FUN. DOWN

FUN. UP

FUN. SELECT

C704 100/ 10V

LD701

LD702

OFF TIMER

VOL. DOWN

VIDEO

MUTE

POWER

RECALL

PR. UP

PR. DOWN

VOL. UP

Q701 2SC2120Y

R702 2.2

R701 1K

IC701
MS0560-001P

C701 100P

CF701

C702 100P

C703 .01

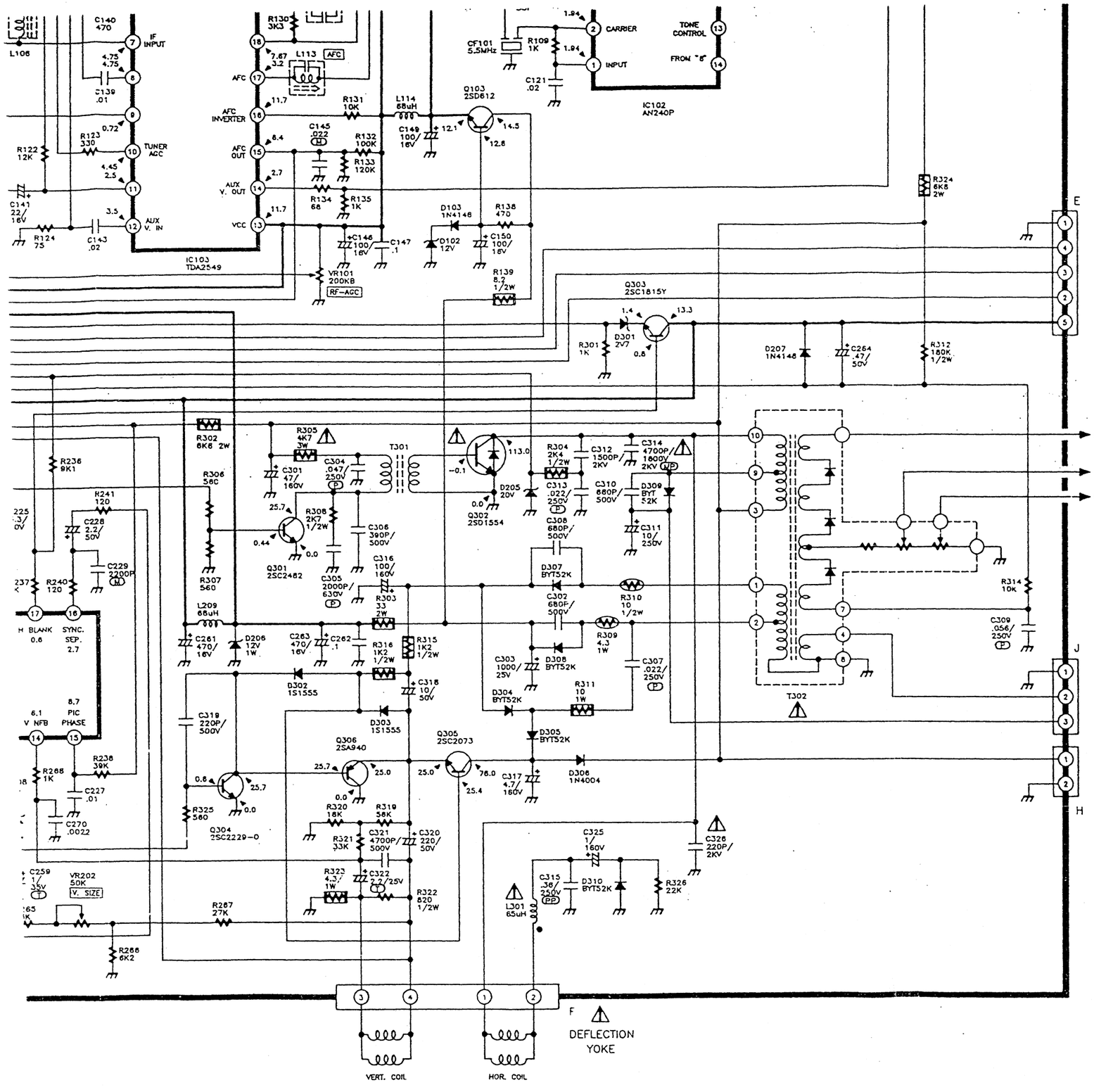
POWER BOARD

DEGAUSSING COIL

IC802 M34300N4-010SP

IC201 TA8718N

AC 230V 50Hz



CIRCUIT SYMBOLS

RESISTOR	CAPACITOR	
NONFLAMMBLE	ELECTROLYIC	POLYPROPYLENE
FUSEBLE	BI-POLAR ELECTROLYIC	MYLAR
CEMENT	TANTALUM	
METAL OXIDE	METALLIZED POLYESTER	
THERMISTOR	POLYESTER FILM	

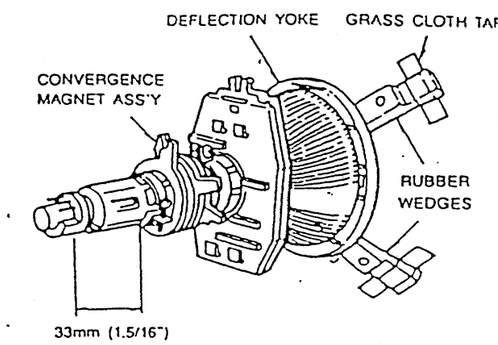
NOTE:

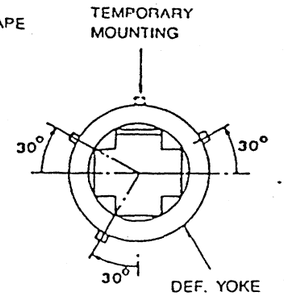
(1) ALL CAPACITORS ARE IN uF UNLESS OTHERWISE NOTED. ALL CAPACITORS ARE 50wv UNLESS OTHERWISE NOTED.
(2) CAPACITOR NOT SPECIFICALLY DESIGNATED ARE CERAMIC CAPACITORS.
(3) ALL RESISTORS ARE IN OHM 1/4 WATT UNLESS OTHERWISE NOTED.
(4) RESISTOR NOT SPECIFICALLY DESIGNATED ARE CARBON FILM RESISTORS.
(5) DC VOLTAGE ARE MEASURED FROM POINTS INDICATED TO THE CIRCUIT GROUND WITH A DIGITAL MULTIMETER TEST.
(6) WAVEFORMS ARE TAKEN WITH SETTING CONTROLS TO A NORMAL CONDITIONS (COLOR PHILIPS PATTERN).
(7) THIS CIRCUIT DIAGRAM IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.
(8) ⚠ SAFETY CRITICAL DEVICE.

SANTON INDUSTRIAL CO., LTD.	
TITLE: SCHEMATIC DIAGRAM	
MODEL: SC3789	SYSTEM: PAL B/G
DRAW NO: 3789-01	COUNTRY:
DRAWN BY:	APPROVED BY:
DATE: OCT 15, 1993.	REV NO: B(28-3-94)

TV/CATV FREQUENZ-TABELLE

TV Band	Kanal	Video Frequenz	Ton Frequenz
VHFL	E2	48.25	53.75
	E3	56.25	60.75
	E4	62.25	67.75
	S1'	69.25	74.75
	S2'	76.25	81.75
	S3'	83.25	88.75
	S1	105.25	110.75
	S2	112.25	117.75
VHFH	S3	119.25	124.75
	S4	126.25	131.75
	S5	133.25	138.75
	S6	140.25	145.75
	S7	147.25	152.75
	S8	154.25	159.75
	S9	161.25	166.75
	S10	168.25	173.75
	E5	175.25	180.75
	E6	182.25	187.75
	E7	189.25	194.75
	E8	196.25	201.75
	E9	203.25	208.75
	E10	210.25	215.75
	E11	217.25	222.75
	E12	224.25	229.75
	S11	231.25	236.75
	S12	238.25	243.75
	S13	245.25	250.75
	S14	252.25	257.75
	S15	259.25	264.75
	S16	266.25	271.75
	S17	273.25	278.75
	S18	280.25	286.75
	S19	287.25	292.75
	S20	294.25	299.75
UHF	21	471.25	476.75
	↕	↕	↕
	69	855.25	860.75





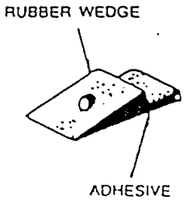
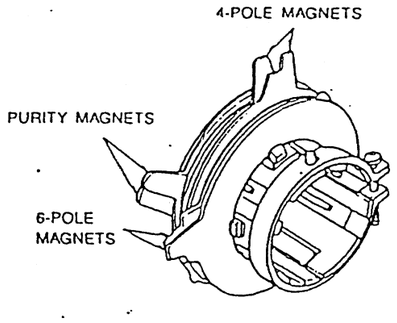


Fig. 8 RUBBER WEDGES LOCATION



CONVERGENCE MAGNET ASSEMBLY

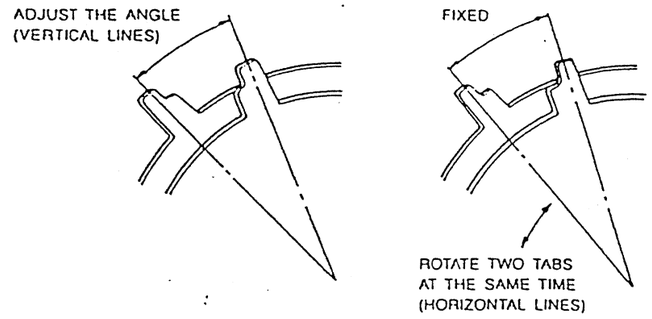


Fig. 9 ADJUSTMENT OF MAGNETS

No.	ADJUSTMENT	PREPARATION	ADJUSTMENT AND CHECK	REMARKS
13.	CENTER CONVERGENCE ADJUSTMENT	1. Receive crosshatch pattern with a colour bar signal generator. 2. Adjust the BRIGHTNESS and CONTRAST Controls for well defined pattern.	1. Adjust two tabs of the 4-Pole Magnets to change the angle between them (see figure 9) and obtain a blue vertical line in the center area of the picture screen. (See figure 10). 2. Turn both tabs at the same time keeping their angles constant to superimpose red and blue horizontal lines at the center of the screen. (See figure 10). 3. Adjust two tabs of 6-Pole Magnets to super-impose red/blue line with green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines. 4. Repeat adjustments 1,2,3, keeping in mind red, green and blue movements because 4-Pole Magnets and make dot movement complex.	

No.	ADJUSTMENT	PREPARATION	ADJUSTMENT AND CHECK	REMARKS
15.	PICTURE IF AND AFC ADJUSTMENT resistor.	1. Apply 16.5V DC voltage across C303 and 8.2V DC to pin 4 of IC103 through a 4.7Kohm 2. A sweep signal is applied to TP of tuner thru 1K in series with .001uf capacitor. 3. Vertical input terminal of an Oscilloscope in series with a 100 K resistor connects to the junction of L110 and R137. 4. A 100 Ohm resistor across pin 18 and pin 19 of IC103. 5. Off the AFC by connecting pin 20 of IC103 to ground through a 10 Kohm resistor. 7. Set the AFC to the ON position by disconnecting the 10 Kohm resistor. 8. Disconnect the sweep signal and the 100 Ohm resistor. 9. Connect a video modulated IF carrier (38.9 MHz) to tuner TP through 1 K in series with 0.001uf capacitor.	6. Adjust L106 to obtain a waveform as shown in Fig. 12. 10. Adjust L112 for minimum black to white amplitude. 11. Align the AFC coil L113 for 6.4V at the AFC output pin 15 of IC103. 12. Adjust the sound intercarries trap L109 for minimum 5.5 MHz output.	

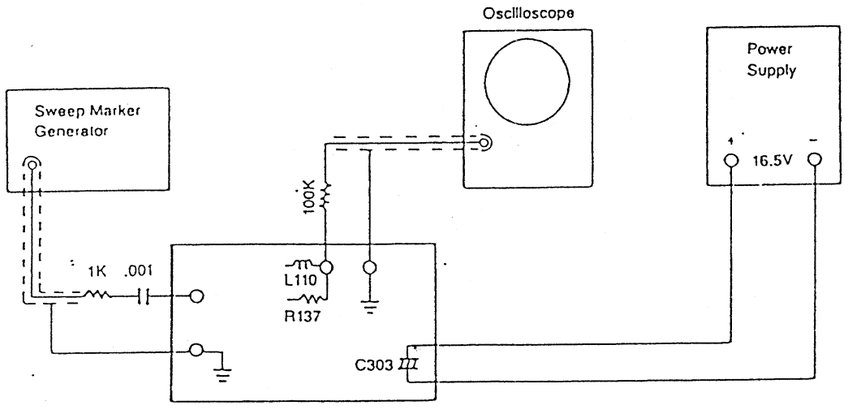
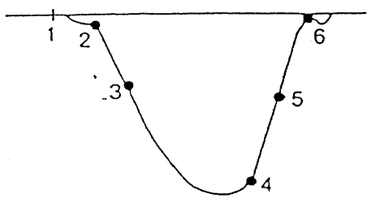


Fig. 11



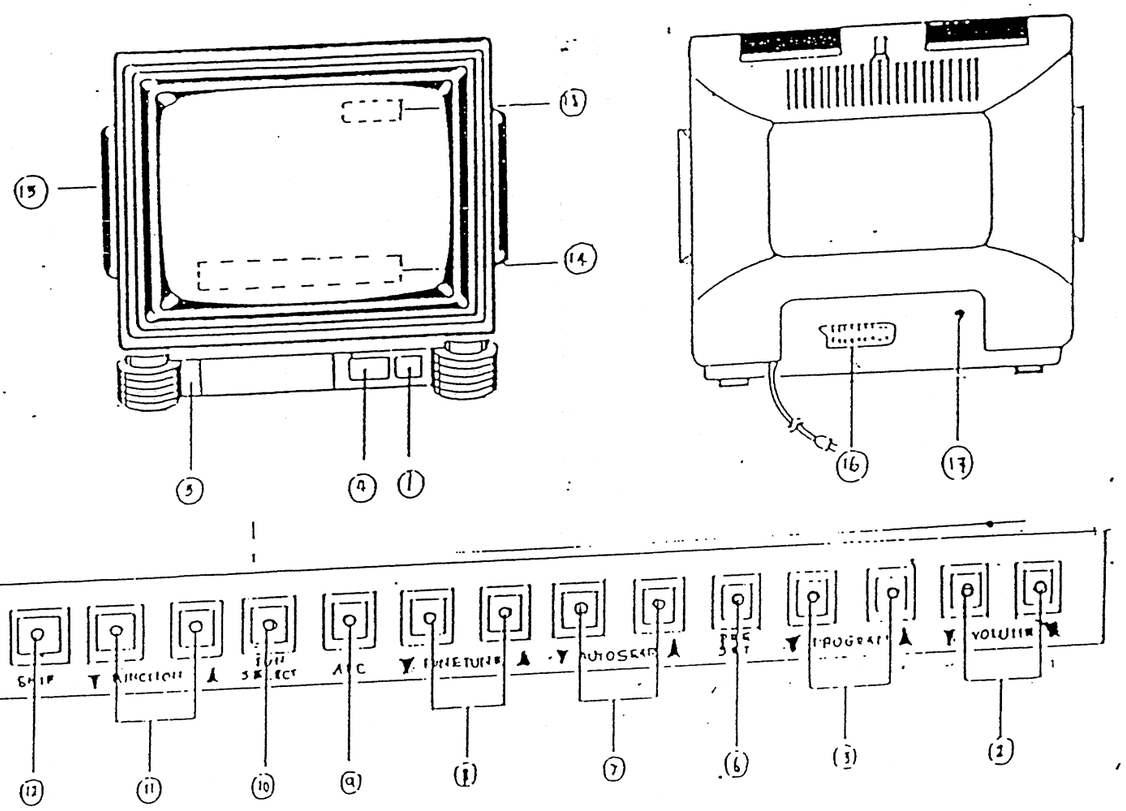
P.I.F. Response Curve

P.I.F. RESPONSE

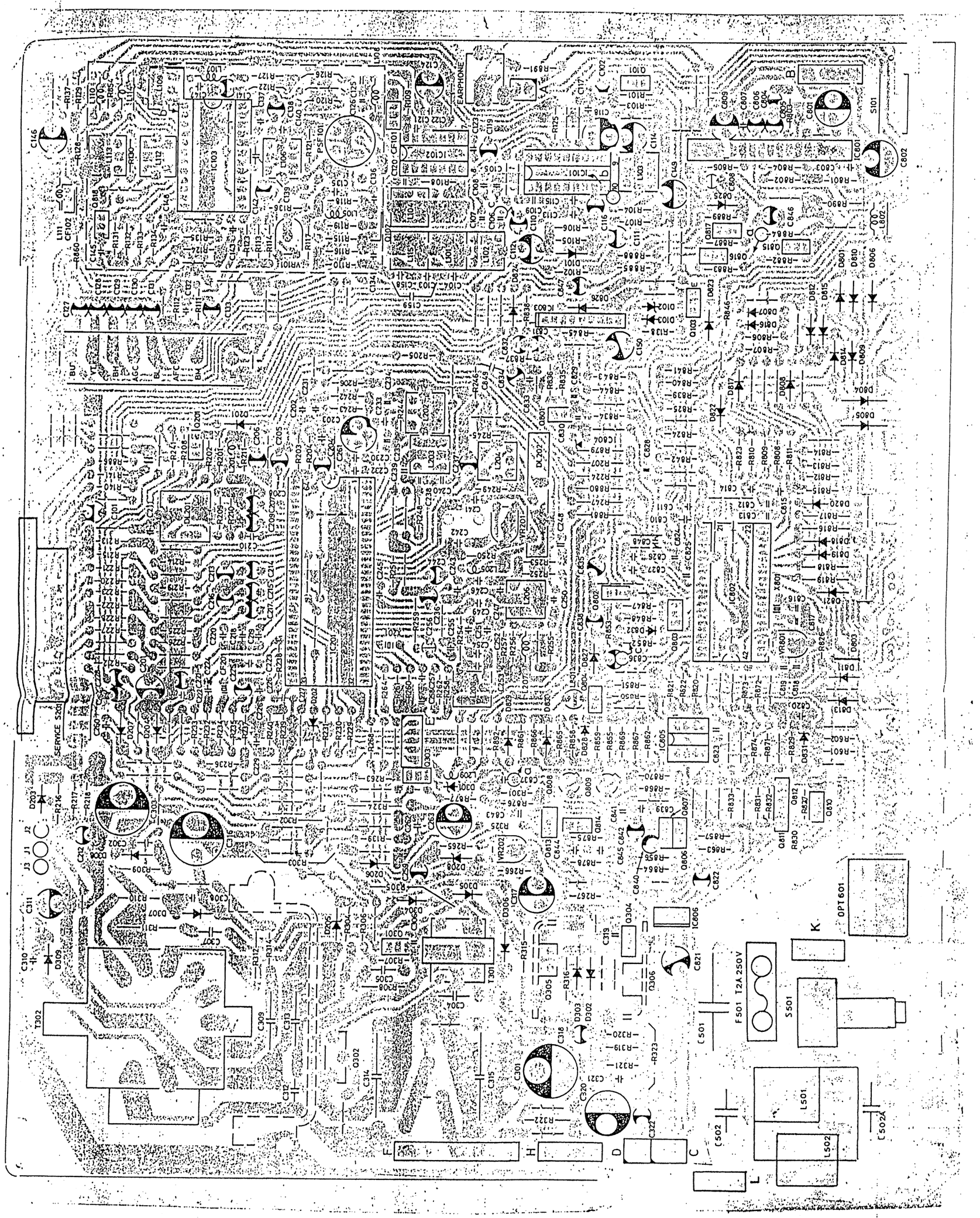
No.	B/G	dB
1.	31.9 MHz	>−40
2.	33.4 MHz	−20~−26
3.	34.47 MHz	−7±1
4.	37.9 MHz	0
5.	38.9 MHz	−6±1
6.	40.4 MHz	>−40

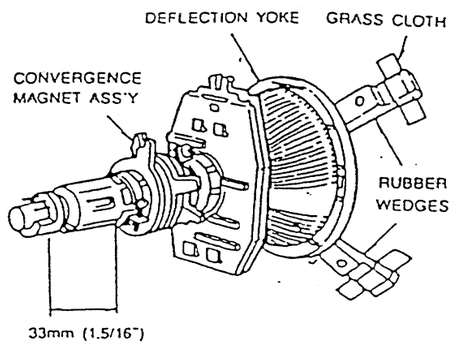
Fig. 12

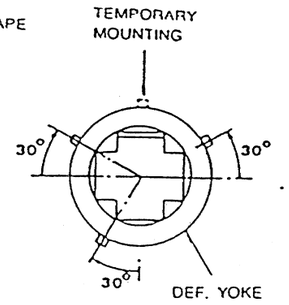
OPERATING CONTROL



1. Main Power Switch.
2. Volume Control Up/Down.
3. Programme Up/Down.
4. Infrared Sensor.
5. Tuning Compartment Door.
6. Preset.
7. Auto Search Up/Down.
8. Fine Tune Up/Down, AFC OFF.
9. AFC ON.
10. Function Select (Colour/Contrast/Brightness)
11. Function Up/Down
12. SKIP.
13. Programme Position Indication (0 to 43/Video).
14. Function Indication (Up/Down – 32 Step) (Colour/Contrast/Brightness) (Volume/Preset/Fine)
15. Speaker.
16. Scart Socket.
17. 75 Ω Aerial Socket.







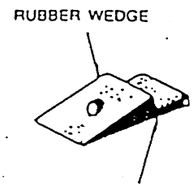
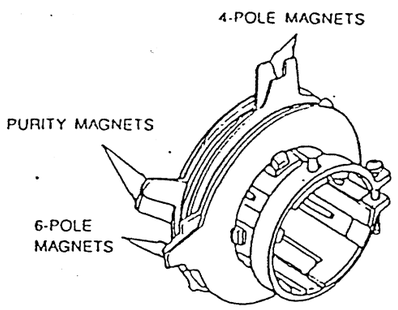


Fig. 8 RUBBER WEDGES LOCATION



CONVERGENCE MAGNET ASSEMBLY

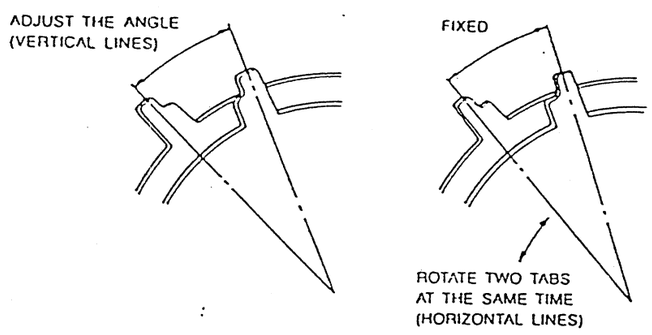
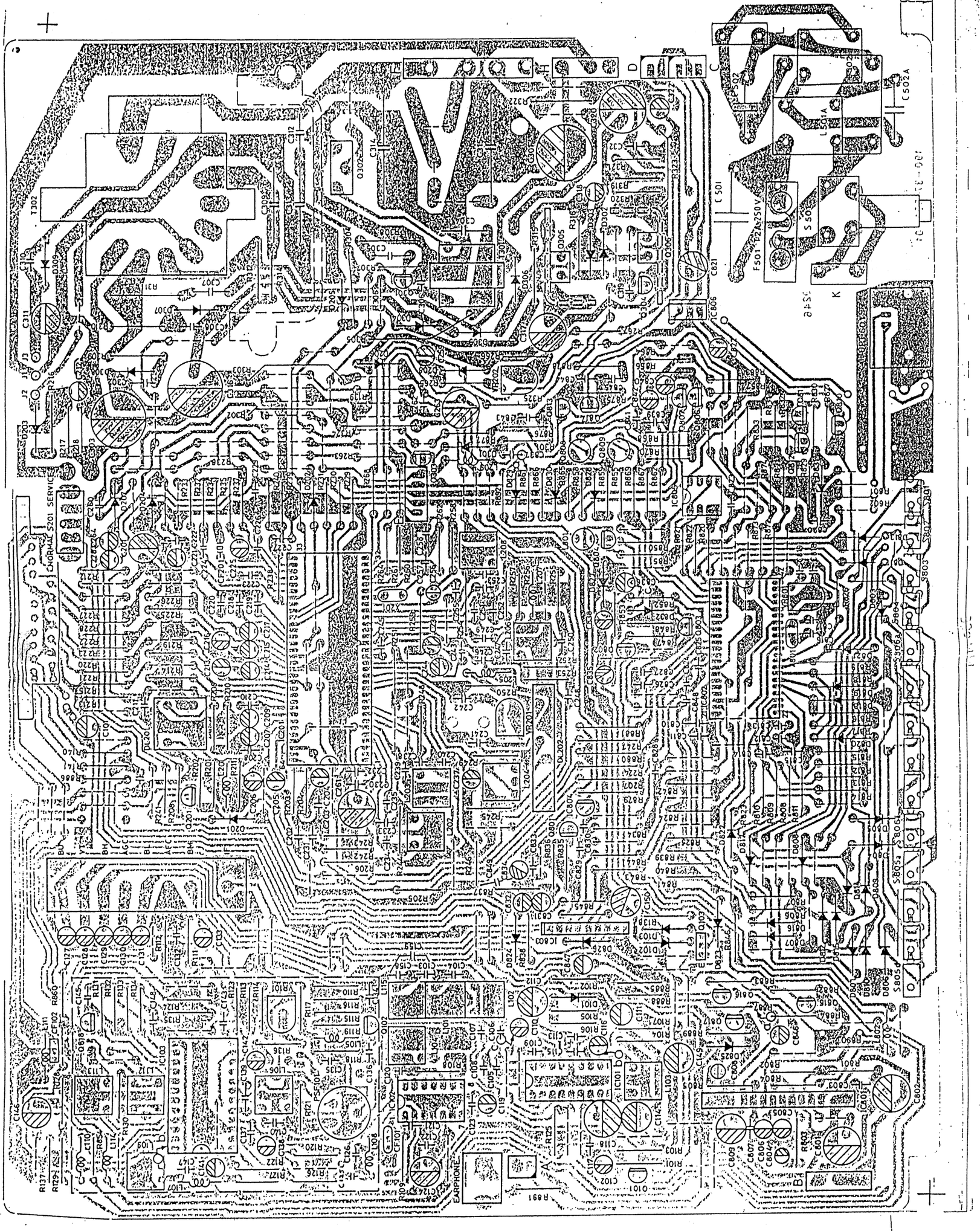


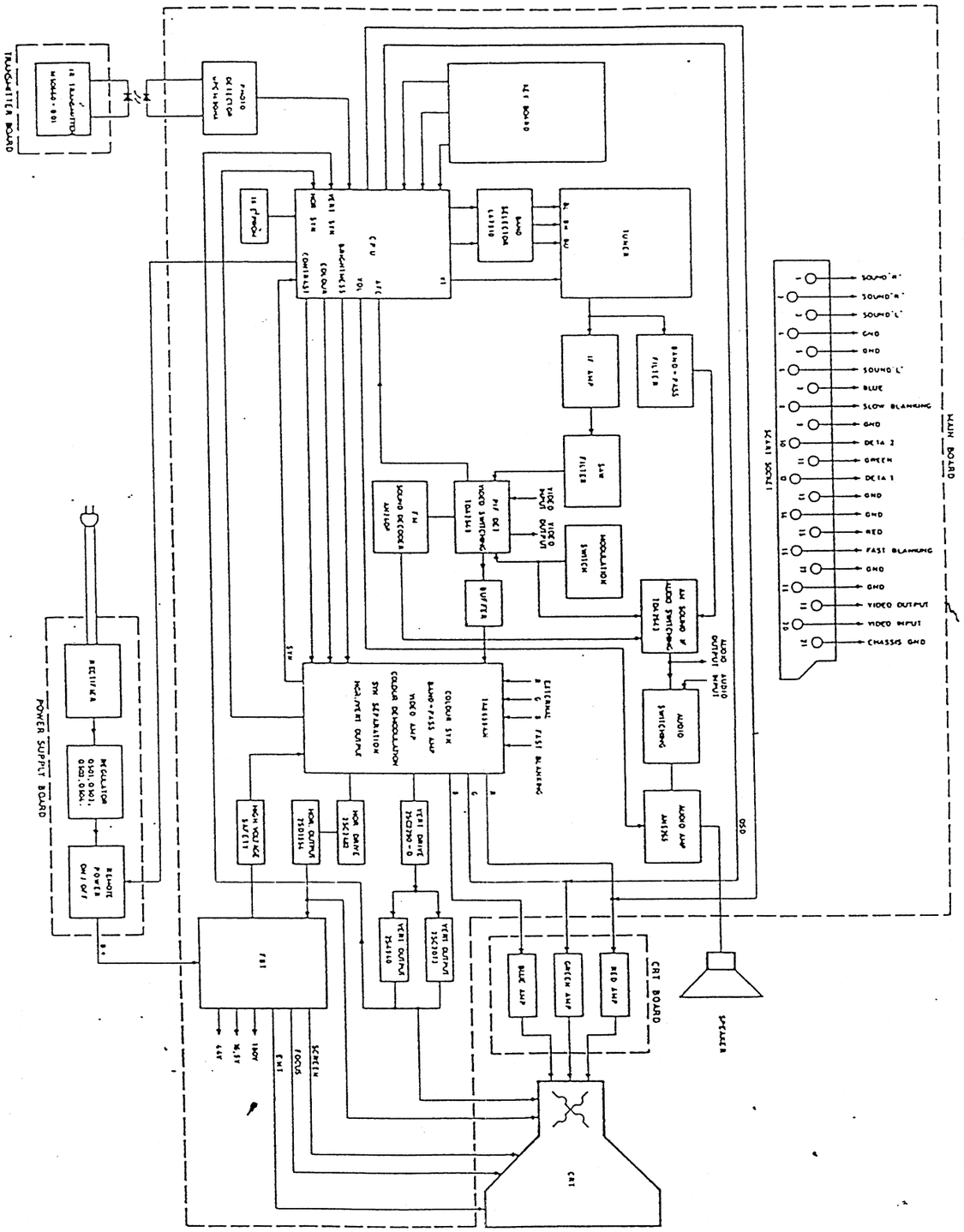
Fig. 9 ADJUSTMENT OF MAGNETS

No.	ADJUSTMENT	PREPARATION	ADJUSTMENT AND CHECK	REMARKS
13.	CENTER CONVERGENCE ADJUSTMENT	1. Receive crosshatch pattern with a colour bar signal generator. 2. Adjust the BRIGHTNESS and CONTRAST Controls for well defined pattern.	1. Adjust two tabs of the 4-Pole Magnets to change the angle between them (see figure 9) and obtain a blue vertical line in the center area of the picture screen. (See figure 10). 2. Turn both tabs at the same time keeping their angles constant to superimpose red and blue horizontal lines at the center of the screen. (See figure 10). 3. Adjust two tabs of 6-Pole Magnets to super-impose red/blue line with green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines. 4. Repeat adjustments 1,2,3, keeping in mind red, green and blue movements because 4-Pole Magnets and make dot movement complex.	



BLOCK DIAGRAM

Fig. 14



EXPLODED VIEW

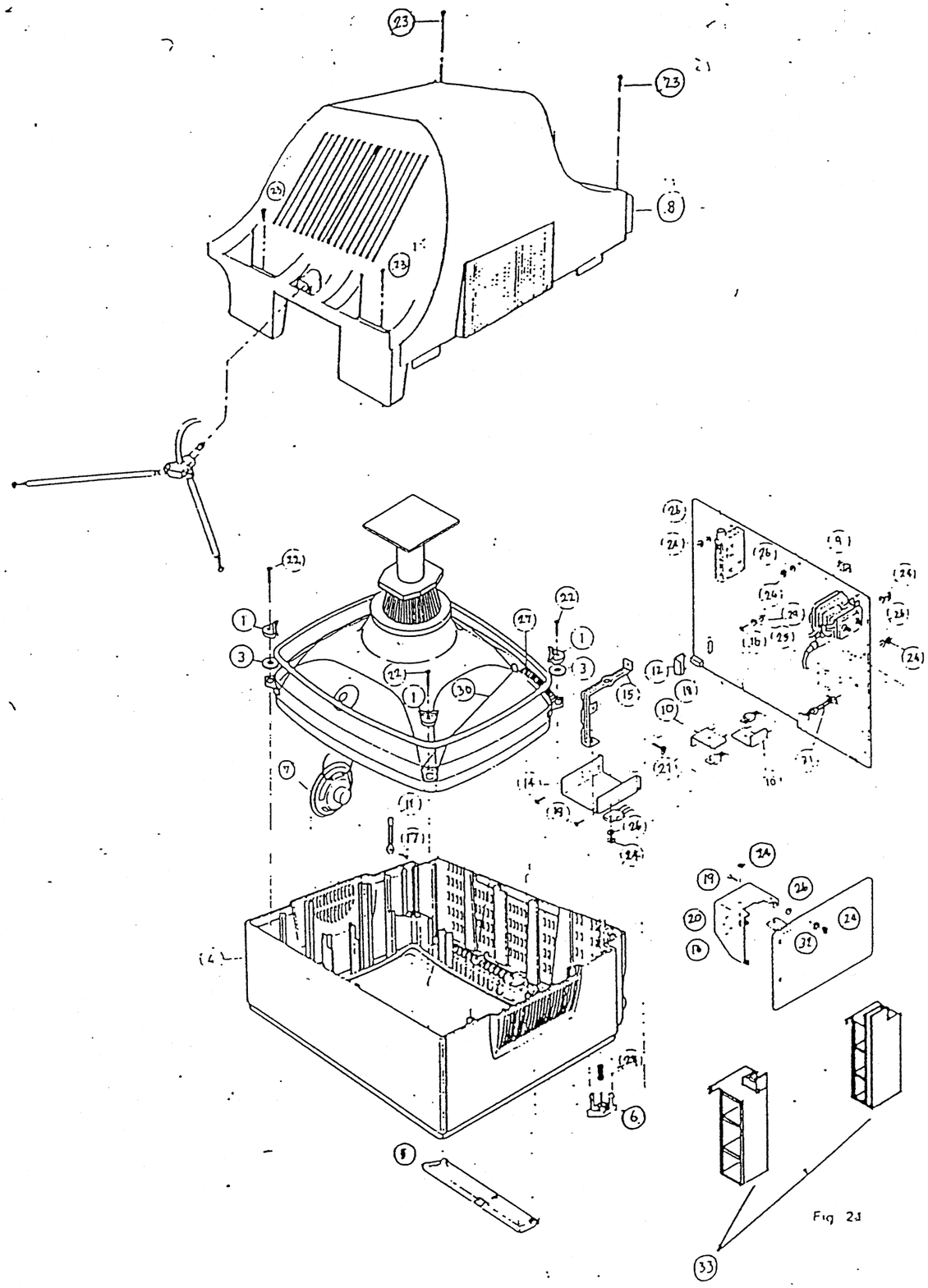


Fig 23

CABINET BACK REMOVAL (See Figure 4)

1. Disconnect the antenna leads from the antenna terminals.
2. Remove 2 screws (A) securing the antenna terminal board to the Cabinet Back.
3. Remove 4 screws (B) securing the Cabinet Back to the Cabinet Front and detach the cabinet back

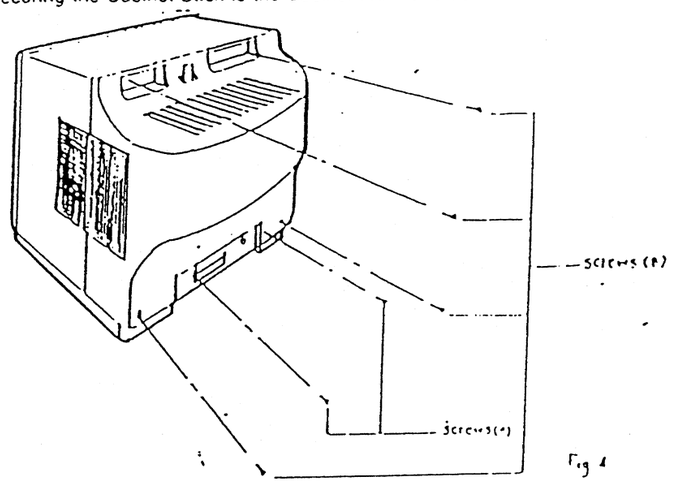


Fig 4

CHASSIS REMOVAL (See Figure 5)

Following the steps under Cabinet Back Removal, proceed as follows:-

1. Unplug the CRT grounding wire socket connected to the CRT Socket Board.
2. Detach the picture tube anode cap.
3. Detach the CRT Socket (CRT Socket Board)
4. Take out the chassis from the chassis holder

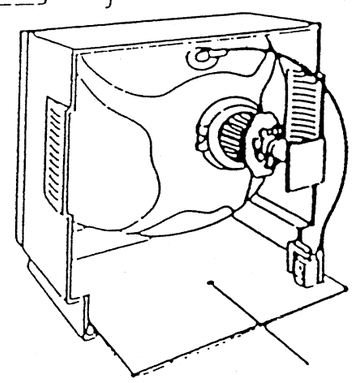


Fig. 5

PICTURE TUBE REMOVAL (See Figure 6)

Following the steps under CHASSIS REMOVAL proceed as follows:

1. Place the cabinet with the front down on a rolled pad or some suitable cushion place near the top edge of the front panel
2. Remove 4 nuts securing the picture tube to the cabinet, and detach the CRT with the degaussing coil, then grasp the face plate edge of the picture tube with both hands and take out the picture tube.
3. Detach the CRT grounding wire which is attached to the picture tube lugs with spring.

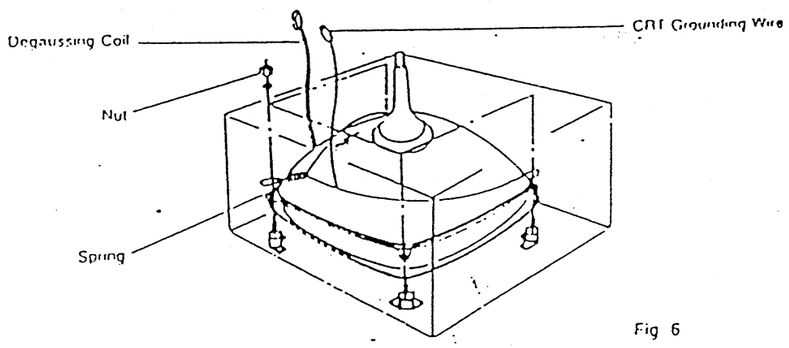
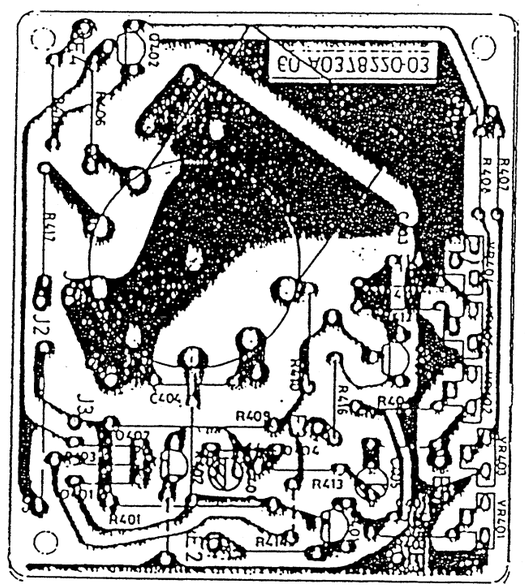


Fig 6

TOP VIEW OF CRT BOARD



BOTTOM VIEW OF CRT BOARD

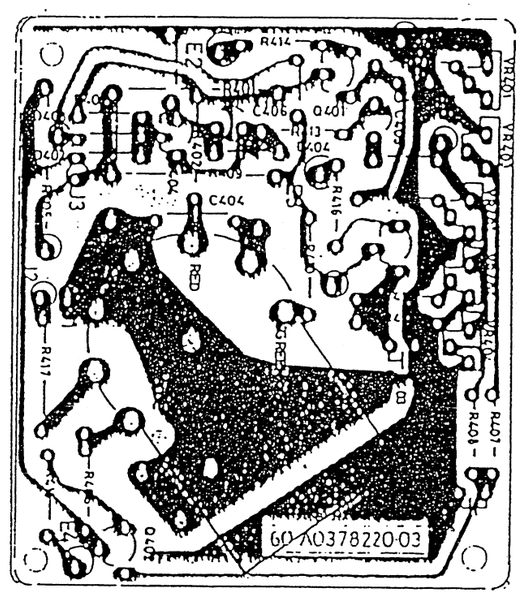
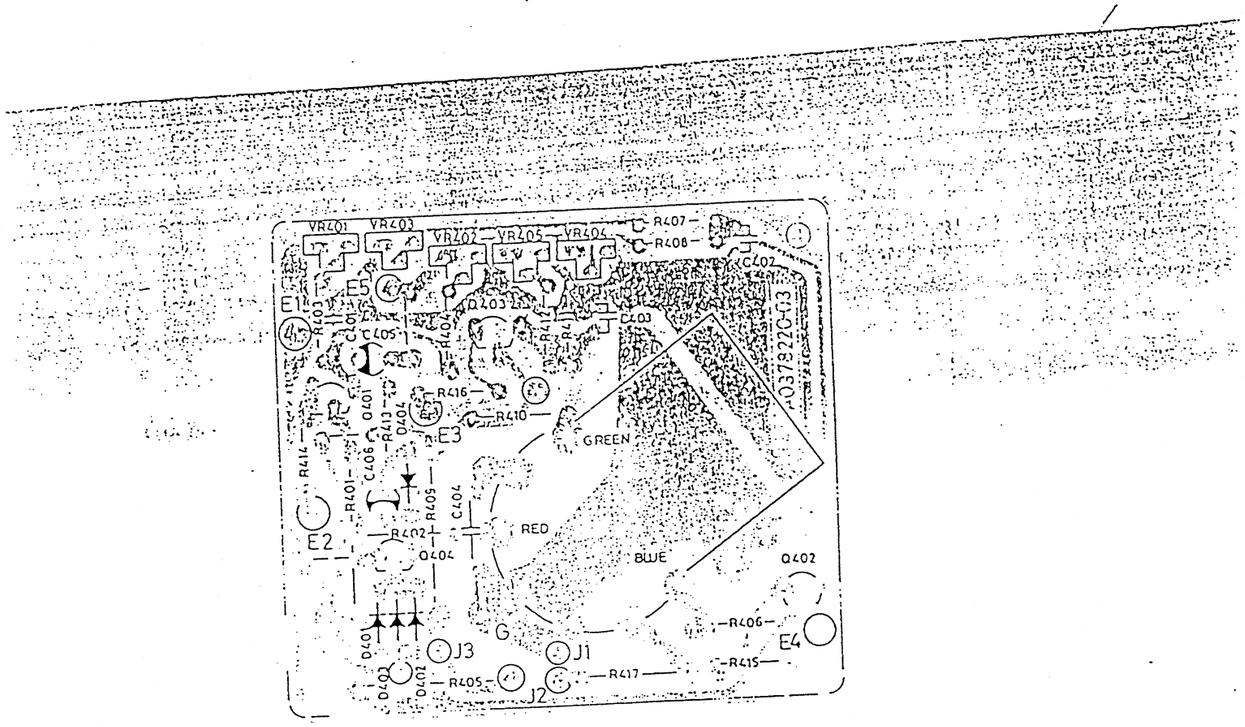


Fig. 19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VR403
VR402
VR405
VR404
R407
R408
C402
C403
R411
R412
Q403
R404
C405
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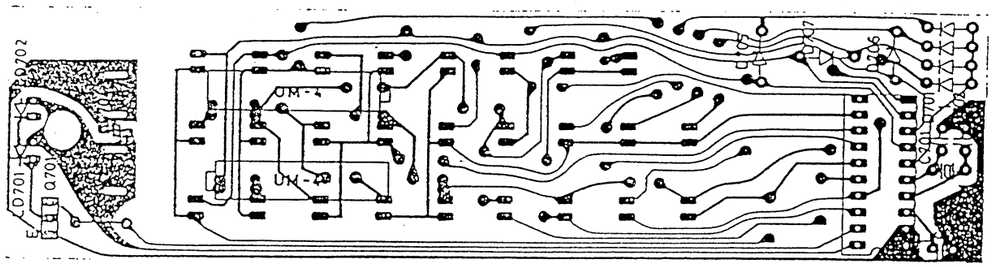
R403
E1
E5
Q401
R416
R413
R410
E3
Q404
R414
C406
R409
R407
E2
C404
Q402
Q404
R401
R405
R402
C407
Q405
R403
C408
R406
E4
R415
R417
J3
J1
J2
G
GREEN
RED
BLUE
037922C-03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LD701
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E
UM-4
UM-3
D707
D706
D705
D704
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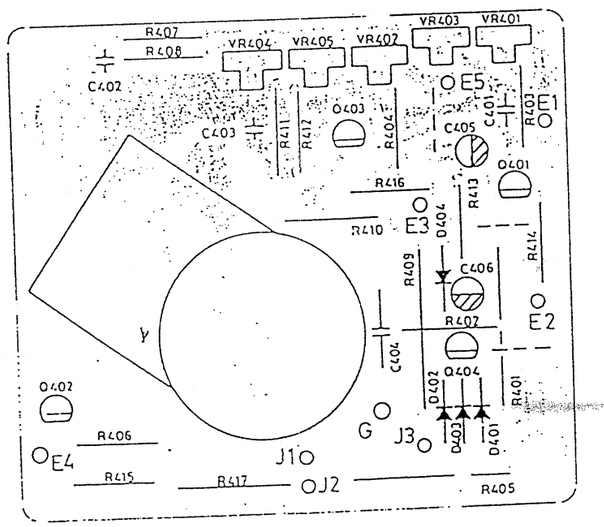
D702
D701
C701
IC701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C402
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R411
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E1
Q401
R416
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R410
E3
Q404
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R409
R407
E2
C404
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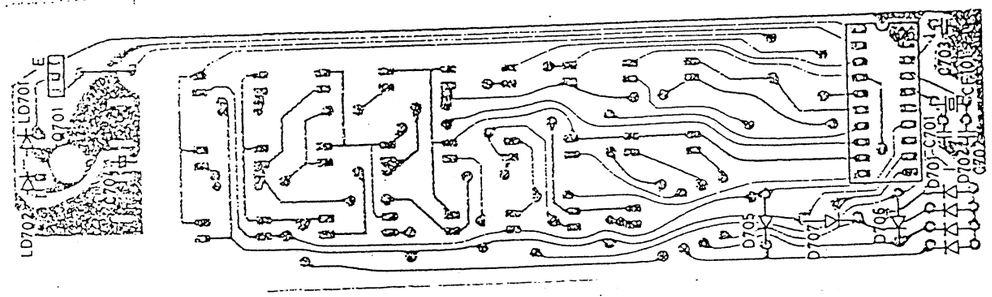
J1
J2
G
J10
R405


LD702
LD701
Q701
E
D707
D706
D705
D704
D703
D702
D701
C701
IC701

ITEM	P/N	DESCRIPTION	QTY
1	100-190000-99	HORI DRIVER TRANSFORMER	1
2	100-420001-98	SWITCHING POWER TRANSFORMER	1
3	100-737820-01	LINE FILTER	1
4	101-300004-07	CERAMIC FILTER SFE 5.5MB	1
5	101-300017-07	CERAMIC FILTER TPS 5.5MB 5.5MHZ	1
6	101-300021-07	CERAMIC RESONATOR KBR455BKTL	1
7	101-300022-05	CERAMIC RESONATOR ZTB503F2	1
8	101-451027-09	PIF SAW FILTER F1037B (38.9MHZ)	1
9	101-710001-08	PIF & AFC IFT (10MM) KT-802946	1
10	101-710002-08	CHROMA TRAP IFT SIF. DET. COIL	1
11	101-710003-08	DELAY LINE COIL 802948	1
12	101-710004-08	PIF MATCHING IFT (10MM) KT-802949	1
13	103-300314-35	DEGAUSSING COIL	1
14	104-150101-02	PEAKING COIL 15UH CEC-150K	1
15	104-303101-01	CHOCK COIL 30MH+/-10%	1
16	104-330101-02	INDUCTOR 33UH CEC-330K	1
17	104-509101-02	CHOKE COIL 5UH CR-5ROK-414-01	1
18	104-568101-02	INDUCTOR 0.56UH CEC-R56M	1
19	104-569101-02	INDUCTOR 5.6UH CEC-5R6K	1
20	104-680101-02	PEAKING COIL 68UH CEC-680K	1
21	108-214012-13	FLYBACK TRANSFORMER 154-138N	1
22	109-075300-03	BALUM TRANSFORMER 75:300 OHM ASS'Y	1
23	112-102234-09	SEMI-FIXED RES. 1K OHM B KHSF-637A+/-20%	1
24	112-103235-09	SEMI-FIXED RES. 10K OHM B KVSF-689A+/-20%	1
25	112-104234-09	SEMI-FIXED RES. 100K OHM B KHSF-637A+/-20%	1
26	112-201235-09	SEMI-FIXED RES. 200 OHM B KVSF-689A+/-20%	1
27	112-204234-09	SEMI-FIXED RES. 200K OHM B KHSF-637A+/-20%	1
28	112-502234-09	SEMI-FIXED RES. 5K OHM B KHSF-637A+/-20%	1
29	113-100205-72	M/O RES 1/2W +/-5% 10 OHM	1
30	113-100305-72	M/O RES 1W +/-5% 10 OHM	1
31	113-101105-12	C/F RES 1/4W +/-5% 100 OHM	1
32	113-102105-12	C/F RES 1/4W +/-5% 1K OHM	1
33	113-103105-12	C/F RES 1/4W +/-5% 10K OHM	1
34	113-104105-12	C/F RES 1/4W +/-5% 100K OHM	1
35	113-105105-12	C/F RES 1/4W +/-5% 1M OHM	1
36	113-106205-22	C/C RES 1/2W +/-10% 10M OHM	1
37	113-109205-72	M/O RES 1/2W +/-5% 1 OHM	1
38	113-109405-72	M/O RES 2W +/-5% 1 OHM	1
39	113-120405-75	M/O RES 2W +/-5% 12 OHM	1
40	113-121105-12	C/F RES 1/4W +/-5% 120 OHM	1
41	113-122105-12	C/F RES 1/4W +/-5% 1.2K OHM	1
42	113-122205-72	M/O RES 1/2W +/-5% 1.2K OHM	1
43	113-123105-12	C/F RES 1/4W +/-5% 12K OHM	1
44	113-124105-12	C/F RES 1/4W +/-5% 120K OHM	1
45	113-152105-12	C/F RES 1/4W +/-5% 1.5K OHM	1
46	113-153105-12	C/F RES 1/4W +/-5% 15K OHM	1
47	113-153405-75	M/O RES 2W +/-5% 15K OHM	1
48	113-154105-12	C/F RES 1/4W +/-5% 150K OHM	1
49	113-182105-12	C/F RES 1/4W +/-5% 1.8K OHM	1
50	113-183105-12	C/F RES 1/4W +/-5% 18K OHM	1
51	113-184105-12	C/F RES 1/4W +/-5% 180K OHM	1
52	113-184205-22	C/C RES 1/2W +/-10% 180K OHM	1
285	202-378801-01	BACK CABINET	1
286	210-151501-00	BATTERY DOOR	1
287	214-378801-01	PRESET DOOR	1
288	228-378801-01	POWER BOARD BRACKET "L"	1
289	228-378802-01	POWER BOARD BRACKET "R"	1
290	229-378801-01	PCB BRACKET	1
291	229-378802-01	CABINET BRACKET	1
292	230-378801-01	PANEL W/ SPRAY BLACK	1
293	250-378801-01	CRT MOUNTING HOLDER	1
294	254-378801-01	PLASTIC WASHER	1
295	263-378801-01	REMOTE SENSOR LENS	1
296	279-378801-01	POWER KNOB	1
297	334-151501-01	CONDUCTIVE RUBBER	1
298	334-772101-01	RUBBER RING	1
299	384-151503-03	HANDSET CONTROL OVERLAY 'ELTA'	1
300	384-151503-04	HANDSET CONTROL OVERLAY 'SUNSTAR'	1
301	385-378801-01	CONTROL PLATE	1
302	411-378801-01	NAME PLATE	1
303	412-378801-01	MODEL PLATE	1
304	412-378801-02	AUDIO IN/OUT COVER PLATE	1
305	428-378801-00	FLYBACK MOUNTING BRACKET	1
306	466-101101-01	FUSE HOLDER	1
307	472-151501-01	BATTERY CONTACT (+)	1
308	473-151501-01	BATTERY CONTACT (-)	1
309	477-378801-01	POWER KNOB SPRING	1
310	477-770001-01	CRT SPRING	1
311	481-378801-01	HEAT SINK	1
312	481-378802-01	POWER SUPPLY HEAT SINK	1
313	482-507244-01	ROD ANTENNA	1
314	483-378801-01	SHIELD BOX TOP	1
315	483-378802-01	SHIELD BOX BOTTOM	1
316	484-378801-01	HEAT SINK PLATE	1
317	484-779101-01	HEAK SINK FOR TRANSISTOR	1
318	485-378801-00	SPEAKER GRILL (LEFT) BLACK	1
319	522-378801-01	SHIELD PAPER 12X100MM	1
320	531-378801-01	FIBER PAPER	1
321	600-305012-10	P/H 3X0.5X12MM	1
322	608-305008-10	T/P/H 3X0.5X8	1
323	610-200108-10	R/T 2X8MM	1
324	610-300110-10	R/T 3X10MM	1
325	612-300108-10	R/T 3X8MM	1
326	612-300110-10	R/T 3X10MM	1
327	614-400112-10	B/T 4X12MM	1
328	614-400116-10	B/T 4X16MM	1
329	614-500130-10	B/T 5X30MM	1
330	620-300522-62	M3 NUT	1
331	630-065045-05	EXTERNAL TOOTH WASHER M3	1
332	660-040001-01	WIRE CLIP	1
333	680-101261-01	WINE TIE	1

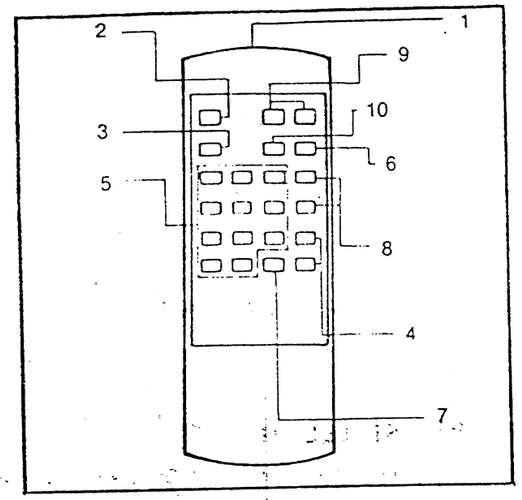
53	113-221105-12	C/F RES 1/4W +/-5% 220 OHM
54	113-222105-12	C/F RES 1/4W +/-5% 2.2K OHM
55	113-223105-12	C/F RES 1/4W +/-5% 22K OHM
56	113-223305-72	M/O RES 1W +/-5% 22K OHM
57	113-225105-12	C/F RES 1/4W +/-5% 2.2M OHM
58	113-229405-75	M/O RES 2W +/-5% 2.2 OHM
59	113-242205-72	M/O RES 1/2W +/-2% 2.4K OHM
60	113-242505-75	M/O RES 3W +/-5% 2.4K OHM
61	113-270105-12	C/F RES 1/4W +/-5% 27 OHM
62	113-270405-75	M/O RES 2W +/-5% 27 OHM
63	113-271105-12	C/F RES 1/4W +/-5% 270 OHM
64	113-272105-12	C/F RES 1/4W +/-5% 2.7K OHM
65	113-272205-12	C/F RES 1/2W +/-5% 2.7K OHM
66	113-273105-12	C/F RES 1/4W +/-5% 27K OHM
67	113-274105-12	C/F RES 1/4W +/-5% 270K OHM
68	113-303105-12	C/F RES 1/4W +/-5% 30K OHM
69	113-330105-12	C/F RES 1/4W +/-5% 33 OHM
70	113-331105-12	C/F RES 1/4W +/-5% 330 OHM
71	113-332105-12	C/F RES 1/4W +/-5% 3.3K OHM
72	113-333105-12	C/F RES 1/4W +/-5% 33K OHM
73	113-334105-12	C/F RES 1/4W +/-5% 330K OHM
74	113-338405-75	M/O RES 2W +/-5% 0.33 OHM
75	113-390605-31	W/W RES 5W +/-10% 39 OHM
76	113-391105-12	C/F RES 1/4W +/-5% 390 OHM
77	113-393105-12	C/F RES 1/4W +/-5% 39K OHM
78	113-399605-42	N/I RES 5W +/-10% 3.9 OHM
79	113-439305-72	C/F RES 1W +/-5% 4.3 OHM
80	113-470105-12	C/F RES 1/4W +/-5% 47 OHM
81	113-471105-12	C/F RES 1/4W +/-5% 470 OHM
82	113-472105-12	C/F RES 1/4W +/-5% 4.7K OHM
83	113-473105-12	C/F RES 1/4W +/-5% 47K OHM
84	113-479105-12	C/F RES 1/4W +/-5% 4.7 OHM
85	113-511105-12	C/F RES 1/4W +/-5% 510 OHM
86	113-561105-12	C/F RES 1/4W +/-5% 560 OHM
87	113-562105-12	C/F RES 1/4W +/-5% 5.6K OHM
88	113-563105-12	C/F RES 1/4W +/-5% 56K OHM
89	113-563205-72	M/O RES 1/2W +/-5% 56K OHM
90	113-680105-12	C/F RES 1/4W +/-5% 68 OHM
91	113-681105-12	C/F RES 1/4W +/-5% 680 OHM
92	113-682105-12	C/F RES 1/4W +/-5% 6.8K OHM
93	113-682405-75	M/O RES 2W +/-5% 6.8K OHM
94	113-683105-12	C/F RES 1/4W +/-5% 68K OHM
95	113-750105-12	C/F RES 1/4W +/-5% 75 OHM
96	113-752105-12	C/F RES 1/4W +/-5% 7.5K OHM
97	113-820105-12	C/F RES 1/4W +/-5% 82 OHM
98	113-821105-12	C/F RES 1/4W +/-5% 820 OHM
99	113-821205-12	C/F RES 1/2W +/-5% 820 OHM
100	113-822105-12	C/F RES 1/4W +/-5% 8.2K OHM
101	113-829205-72	M/O RES 1/2W +/-5% 8.2 OHM
102	113-912105-12	C/F RES 1/4W +/-5% 9.1K OHM
103	114-210180-02	PTC THERMISTISTOR +/-30% 18 OHM
104	123-101340-10	CERA CAP 50V +/-5% 100PF SL
105	123-101350-10	CERA CAP 50V +/-10% 100PF
106	123-102350-10	CERA CAP 50V +/-10% 0.001 UF
107	123-102850-10	CERA CAP 2KV +/-10% 1000PF
108	123-103370-30	CERA CAP 50V +80 -20% F 0.01UF
109	123-104370-30	CERA CAP 50V +80 -20% 0.1UF F
110	123-120340-10	CERA CAP 50V +/-5% SL 12PF

DIE FERNBEDIENUNG

Die Fernbedienung wird mit Hilfe eines Infrarot-Signals betrieben. Achten Sie darauf, daß kein starkes Licht auf den Sensor fällt, da dies die Betribsdistanz (ca. 5 m) veringern kann. Lassen Sie die Fernbebienung nicht fallen, und setzen Sie diese nicht hohen Temperaturen aus.

FUNKTIONEN DER FERNBEDIENUNG

1. Fernbedienungssensor
2. Einschalt-/Recall Taste
3. Ausschalt-/Standby Taste
4. Lautstärketaste +/-
5. Programmplatztasten
6. Schlaftaste
7. Stummschaltung
8. Programmwahltaste +/-
9. TV/Video Taste
10. Suchlauf



Das Gerät kann nur nach dem Einschalten mit dem Hauptschalter fernbedient werden.

PROGRAMMWAHL MIT FERNBEDIENUNG (0-9)

Die Programmplatztasten (5) [0-9 und -/--] sind zur Direktwahl der Programmplätze 0 – 89 vorgesehen. Mit ihnen können Sie die Programme jeweils einzeln aufrufen.

BEISPIEL: Fur den Programmplatz 89 drücken Sie zuerst die Taste -/-- und dann die Tasten 8 und 9.

Die Programmwahl kann auch mit der Programmwahltaste (8) erfolgen.

LAUTSTÄRKE (◿)

Durch drücken der Lautstärketaste +/- (4) wird die Lautstärke erhöht oder vermindert.

STUMMTASTE (🔇)

Mit der Stummtaste (7) können Sie den Ton ausschalten. Durch erneutes drücken der Stummtaste schalten Sie den Ton wieder ein.

EIN/AUS TASTE

Mit dieser Taste schalten Sie das Gerät ein oder aus.

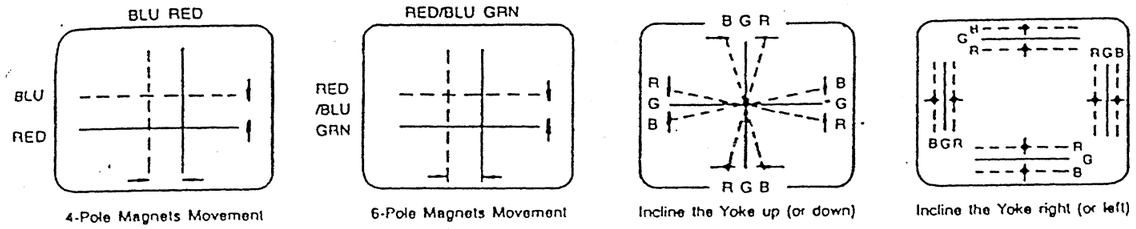
TV/VIDEO

Drücken Sie die Taste "VIDEO" (9) bei Vedeoempfang. Für Fernsehempfang drücken Sie die Taste "TV" (9).

SCHLAFTASTE (⏻)

Mit dieser Taste koenen Sie das Gerät auf eine Betriebsdauer von 15-120 Minuten vorprogrammieren. Die Taste mehrmals drücken, um die gewünschte Betriebszeit einzustellen. Die Minutenanzeige erscheint auf dem Bildschirm.
Beispielsweise wünschen Sie, daß das Gerät nach 15 Minuten automatisch ausschaltet.

1. Drücken Sie die Schlaftaste, die Anzeige ⏻ OFF erscheint auf dem Bildschirm.
2. Drücken Sie die Taste erneut, erscheint die Anzeige ⏻ 15 auf dem Bildschirm.
3. Die Restspielzeit kann ebenfalls durch einmaliges drücken der Schlaftaste abgerufen werden.
4. Um diese Funktion zu löschen, drücken Sie die Schlaftaste mehrmals bis die Anzeige ⏻ OFF auf dem Bildschirm erscheint.



4-Pole Magnets Movement | 6-Pole Magnets Movement | Incline the Yoke up (or down) | Incline the Yoke right (or left)

Center Convergence by Convergence Magnets | Circumference Convergence by DEF Yoke

Fig. 10 Dot Movement Pattern

No.	ADJUSTMENT	PREPARATION	ADJUSTMENT AND CHECK	REMARKS
14.	CIRCUMFERENCE CONVERGENCE ADJUSTMENT	1. Loosen the clamping screw of deflection yoke to allow the yoke to tilt. 2. Place a wedge as shown in figure 8 temporarily. (Do not remove cover paper on adhesive part of the wedge.)	1. Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (See figure 10). Push the mounted wedge into the space between picture tube and the yoke to hold the yoke temporarily. 2. Place other wedge into bottom space and remove the cover paper to stick. 3. Tilt front of the yoke right or left to obtain better convergence in circumference. (See figure 10). 4. Hold the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to hold the yoke. 5. Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke. After placing three wedges, recheck overall convergence. 6. Tighten the screw firmly to hold the yoke tightly in place. Stick 3 adhesive tapes on wedges as shown in figure 8.	

169	127-227072-01	ELEC CAP 50V +/-20% 220UF	
170	127-335072-01	ELEC CAP 50V +/-20% 3.3UF	
171	127-474072-01	ELEC CAP 50V +/-20% 0.47UF	
172	127-475135-01	ELEC CAP 160V +/-20% 4.7UF	
173	127-476042-01	ELEC CAP 16V +/-20% 47UF	
174	127-476052-01	ELEC CAP 25V +/-20% 47UF	
175	127-476135-01	ELEC CAP 160V +/-20% 47UF	
176	127-477042-01	ELEC CAP 16V +/-20% 470UF	
177	127-477052-01	ELEC CAP 25V +/-20% 470UF	
178	128-104212-11	MP/F CAP AC 250V +/-20% 0.1UF	
179	128-474212-11	MP/F CAP AC 250V +/-20% 0.47UF	
180	130-700574-01	I.C. UPC574J	
181	130-834300-42	I.C. M34300M4-012SP	
182	130-850560-20	I.C. M50560-001P	
183	130-880011-08	IC M80011AP	
184	130-900240-14	I.C. AN240P	
185	130-902549-24	I.C. TDA2549	
186	130-905265-09	I.C. AN5265	
187	130-907910-00	I.C. LA7910	
188	130-908659-64	I.C. TA8659AN	
189	131-127805-02	I.C. L7805CV	
190	131-210940-00	TR 2SA 940(Z) (TOSHIBA)	
191	131-211013-25	TR 2SA 1013-Y	
192	131-211015-01	TR 2SA 1015GR (2SB774T)	
193	131-211015-25	TR 2SA 1015-Y	
194	131-218020-00	TR BSX20 "SGS"	
195	131-231815-25	TR 2SC 1815Y (TOSHIBA)	
196	131-232073-00	TR 2SC 2073(Z) (TOSHIBA)	
197	131-232120-25	TR 2SC 2120-Y	
198	131-232229-15	TR 2SC 2229-O NPN VIDEO O/P (TOSHIBA)	
199	131-232230-25	TR 2SC 2230-Y	
200	131-232482-00	TR 2SC 2482	
201	131-232717-00	TR 2SC 2717	
202	131-233309-01	TR 2SC 3309	
203	131-240400-00	TR 2SD 400(F)	
204	131-240612-06	TR 2SD 612E	
205	131-241431-00	TR 2SD 1431 WITH MICA SHEET	
206	131-241554-00	TR 2SD 1554	
207	132-131555-00	DIODE 1S1555 (TOSHIBA)	
208	132-131835-00	DIODE 1S1835 TPA2	
209	132-132775-00	DIODE 1S2775	
210	132-134148-00	DIODE 1N4148	
211	132-135295-00	DIODE BYT52K	
212	132-314004-10	DIODE IN 4004	
213	132-410012-01	ZENER DIODE HZ12A-1	12V
214	132-410013-00	ZENER DIODE HZ12B-2	13V
215	132-410020-00	ZENER DIODE HZ 20-2	20V
216	132-410039-00	ZENER DIODE HZ4B2 3.9V	
217	132-410051-00	ZENER DIODE HZ5C2 5.1V	
218	132-410075-00	ZENER DIODE HZ 7C-1	7.5V
219	132-410082-00	ZENER DIODE HZ 9A-2	8.2V
220	132-410091-00	ZENER DIODE HZ 9B-1	9.1V
221	132-510105-00	INFRARED LED TLN 105B	
222	133-004000-10	CRYSTAL 4.00 MHZ	
223	133-004430-10	CRYSTAL 4.43 MHZ	
224	136-830337-00	HC337 OR HC320	
226	139-500180-01	GLASS DELAY LINE YBL-50A18X	

111	123-150340-10	CERA CAP 50V +/-5% SL 15PF
112	123-152850-10	CERA CAP 2KV +/-10% 1500PF Y5P
113	123-180340-10	CERA CAP 50V +/-5% SL 18PF
114	123-181340-10	CERA CAP 50V +/-5% SL 180PF
115	123-220340-10	CERA CAP 50V +/-5% 22PF SL
116	123-221550-40	CERA CAP 500V +/-10% 220PF Y5P
117	123-222350-10	CERA CAP 50V +/-10% 0.0022UF
118	123-222561-10	CERA CAP AC 400V +/-20% 2200PF
119	123-222670-10	CERA CAP 1KV +/-20% 0.0022UF Z5U
120	123-223370-30	CERA CAP 50V +80 -20% 0.022UF F
121	123-224370-30	CERA CAP 50V +80 -20% 0.22UF F
122	123-241340-13	CERA CAP TEMP COMPENSATING 50V +/-5% 240PF
123	123-300340-10	CERA CAP 50V +/-5% SL 30PF
124	123-301340-10	CERA CAP 50V +/-5% 300PF SL
125	123-330340-10	CERA CAP 50V +/-5% 33PF SL
126	123-390340-10	CERA CAP 50V +/-5% 39PF SL
127	123-391340-10	CERA CAP 50V +/-5% 390PF SL
128	123-391550-40	CERA CAP 500V +/-10% 390PF Y-5P
129	123-471350-10	CERA CAP 50V +/-10% 470PF SL
130	123-471551-10	CERA CAP AC 400V +/-10% 470PF
131	123-472551-60	CERA CAP 500V +/-20% 0.0047UF Z5U
132	123-472660-10	CERA CAP 1KV +/-20% 0.0047UF Z5U
133	123-472860-10	CERA CAP 2KV +/-20% 4700PF Z5U
134	123-473370-30	CERA CAP 50V +80 -20% 0.047UF F
135	123-560340-10	CERA CAP 50V +/-5% 56PF SL
136	123-561350-10	CERA CAP 50V +/-10% SL 560PF
137	123-680340-10	CERA CAP 50V +/-10% 68PF SL
138	123-681552-40	CERA CAP 500V +/-10% 680PF Y-5P
139	124-105051-01	TANT CAP 25V +/-10% 1UF
140	124-225061-01	TANT CAP 35V +/-10% 2.2UF
141	125-222600-01	P/F CAP 630V +/-5% 0.0022UF
142	125-223210-01	P/F CAP 250V +/-5% 0.022UF
143	125-473211-01	P/F CAP 250V +/-10% 0.047UF
144	125-524210-01	P/F CAP 250V +/-5% 0.52UF
145	125-562000-01	P/F CAP 1600V +/-5% 0.0056UF
146	125-563211-01	P/F CAP 250V +/-10% 0.056UF
147	126-102071-01	MYLA CAP 100V +/-10% 0.001UF
148	126-103071-01	MYLA CAP 100V +/-10% 0.01UF
149	126-104071-01	MYLA CAP 100V +/-10% 0.1UF
150	126-222071-01	MYLA CAP 100V +/-10% 0.0022UF
151	126-223071-11	MYLA CAP 100V +/-10% DUREX 0.022UF
152	126-224081-01	MP/F CAP 63V +/-10% 0.22UF
153	126-333071-01	MYLA CAP 100V +/-10% 0.033UF DUREX
154	126-563071-01	MYLA CAP 100V +/-10% 0.056UF
155	126-682071-01	MYLA CAP 100V +/-10% 0.0068UF
156	127-105072-01	ELEC CAP 50V +/-20% 1UF
157	127-106042-01	ELEC CAP 16V +/-20% 10UF
158	127-106072-01	ELEC CAP 50V +/-20% 10UF
159	127-106215-01	ELEC CAP 250V +/-20% 10UF
160	127-107032-01	ELEC CAP 10V +/-20% 100UF
161	127-107042-01	ELEC CAP 16V +/-20% 100UF
162	127-107135-01	ELEC CAP 160V +/-20% 100UF
163	127-107405-01	ELEC CAP 400V +/-20% 100UF
164	127-108052-01	ELEC CAP 25V +/-20% 1000UF
165	127-224072-01	ELEC CAP 50V +/-20% 0.22UF
166	127-225072-01	ELEC CAP 50V +/-20% 2.2UF
167	127-225072-11	ELEC CAP 50V +/-20% 2.2UF (BI-POLAR)
168	127-226042-01	ELEC CAP 16V +50 -10% 22UF

227	139-645011-01	DELAY LINE YCS-EN645A11
228	141-062411-06	SLIDE SWITCH 2P2T
229	144-011031-05	CD LOCKER SWITCH F1Q61
230	144-011411-19	TACT SW KPT-1105S 8.35MM
231	145-110001-00	POWER PUSH SWITCH J-E3020#01
232	154-002700-01	TUNER TELEFUNKEN CATV FTZ 2700KKC
233	160-101802-01	ONE PIN SOCKET (STV-8-1H)
234	160-101805-01	ONE PIN PLUG (STV-8-1W)
235	160-101805-02	ONE PIN PLUG
236	160-102252-24	2 PIN SOCKET P24111-2
237	160-102255-24	2 PIN PLUG M24111-2
238	160-102802-01	2 PIN SOCKET (STV-8-2H)
239	160-102805-01	2 PIN PLUG (STV-8-2W)
240	160-103252-24	3 PIN SOCKET P24111-3
241	160-103255-24	3 PIN PLUG M24111-3
242	160-103752-01	3 PIN SOCKET P1138-3
243	160-103755-01	3 PIN PLUG M1138-3
244	160-104805-01	4 PIN PLUG (STV-8-4W)
245	160-105252-24	5 PIN SOCKET P24111-5
246	160-105255-24	5 PIN PLUG M24111-5
247	160-121502-01	SOCKET (21 PINS)
248	161-721008-01	CRT SOCKET S08729
249	161-731008-01	FOCUS COVER FOR CRT SOCKET
250	170-130008-15	SPEAKER 8 OHM 1.5W
251	180-221100-00	AC LINE CORD (VDE)
252	181-006000-00	6000MM BARE WIRE 0.6MM 1KG=357M
253	181-124026-001	JUMPER WIRE AWG #24 260MM BLACK
254	181-124026-021	JUMPER WIRE AWG #24 260MM RED
255	181-124026-031	JUMPER WIRE AWG #24 260MM ORANGE
256	181-124026-041	JUMPER WIRE AWG #24 260MM YELLOW
257	181-124026-071	JUMPER WIRE AWG #24 260MM VIOLET
258	181-124030-00	JUMPER WIRE AWG #24 300MM BLACK
259	181-124030-02	JUMPER WIRE AWG #24 300MM RED
260	181-124030-04	JUMPER WIRE AWG #24 300MM YELLOW
261	181-126040-001	JUMPER WIRE AWG #26 400MM BLACK
262	181-126040-021	JUMPER WIRE AWG #26 400MM RED
263	181-126040-031	JUMPER WIRE AWG #26 400MM ORANGE
264	181-126040-051	JUMPER WIRE AWG #26 400MM PINK
265	181-126040-061	JUMPER WIRE AWG #26 400MM BLUE
266	181-322005-00	JUMPER WIRE AWG #22 50MM BLACK
267	181-322022-003	JUMPER WIRE AWG #22 220MM BLACK
268	181-322022-012	JUMPER WIRE AWG #22 220MM BROWN
269	181-322022-023	JUMPER WIRE AWG #22 220MM RED
270	181-322022-062	JUMPER WIRE AWG #22 220MM BLUE
271	181-322030-032	JUMPER WIRE AWG #22 300MM BLACK
272	181-322046-003	JUMPER WIRE AWG #22 460MM BLACK
273	181-322046-023	JUMPER WIRE AWG #22 460MM RED
274	181-828000-00	BRAIDED WIRE 500MM
275	190-374501-01	MAIN PCB
276	190-374502-01	CRT PCB
277	190-374503-01	POWER PCB
278	190-374504-01	REMOTE HANDSET PCB
279	192-122000-03	FUSE T2A 5 X 20MM 250V SEV
280	194-311913-00	FERRITE CORE
281	196-415100-01	BATTERY UM4 1.5V
282	200-378801-01	MAIN FRONT CABINET
283	201-151501-00	HANDSET TOP CAB
284	202-151502-00	HANDSET BOTTOM CAB